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Evaluating Learning Styles and Personality Type:
Guidance for Home School Families Selecting High School Curriculum

A Research Project submitted in partial fulfillment
of the requirements for the degree of
Master of Education

By

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2013

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Abstract

“The diagnosis and identification of the strengths and weaknesses of each student, both cognitive and emotional structure, establishes the teaching prescription of instruction” (White, 1998, p. 145). Along with achievement and aptitude tests and portfolios, home school parents can delve into personality and learning styles to gain a greater understanding of their child’s strengths and weaknesses and also to guide in curriculum choices. Can evaluating personality and learning styles aid home school parents in the curriculum decisions? This study included nine upper elementary home schooled students. Each participant completed a self-assessment questionnaire. The data gained from the questionnaire and the follow-up curriculum recommendations demonstrate the value of evaluating personality and learning style for home school families involved in curriculum decisions—especially when students are headed into the crucial high school years.

Keywords: curriculum, environmental preferences, home school, information processing, learning preferences, learning style, multiple intelligences, personality type, strengths and weaknesses

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Acknowledgements/Dedication

Many people participate in the shaping of an individual. Though my parents, Clair and Myrtie Hurne, have been at home in heaven for many years, their influence still touches my life. One of my early supporters to pursue the Master of Education program was my husband's mom, Helen Cook. My friends, Lisa Magoffin and Carol Stearns, offered continual encouragement. The Cedarville University professors I have had over the years in the program have been an encouragement throughout the process—especially Dr. Ager, Dr. Baumann, and Dr. Heaton. Tim, my husband, and our girls, Hannah, Rachel, and Emma, have sustained this dream through encouragement, support, and by taking over many responsibilities to allow time to work through the program and this research—but then supporting one another and doing more than “my own thing” is part of the home school phenomenon! God has been my greatest support. How can one continue without God, the Creator of the universe, taking notice to answer multiple prayers for completing classwork?

This work is dedicated to those families that home schooled in the early years of the modern home school movement, the '60s, '70s, and '80s, when home schooling was an option not taken lightly. Resources were limited by many factors. They forged the path for many families to take back greater control of their children's education that has made a profound impact on our educational system in America and around the world. Parents are given great responsibilities with children, and those early home schooling parents took that responsibility very seriously. Thank you for your example and perseverance.

“For God has not given us the spirit of fear, but of power, and of love, and of a sound mind.”

II Timothy 1:7

Chapter One: Introduction of the Study

Families educated their children at home long before any organized public education existed. Though home education has been part of the fabric of United States history, the 1960s and 1970s experienced a renewal in the modern day home school movement (Wilhelm & Firmin, 2009, p. 303; Gaither, 2009, p. 11). Gaither explains that participation by “ethnic and religious groups” other than white/Caucasians continues to grow (p. 13). African Americans, Native Americans, Hispanics, Hawaiian natives, Jews, Roman Catholics, Muslims, and sports and the arts families continue to add to the numbers of families that have embraced home education. Various sources estimate anywhere between one million to over two million children are home schooled in the United States (Gaither, 2009; Home School Legal Defense Association or HSLDA, hsllda.org; Isenberg, 2007; Wilhelm & Firmin, 2009). Today’s home school families do not have to hide inside their homes fearing legal action that might take away their “deprived, uneducated, sheltered children,” a characterization of home schooled children by some people. Many colleges actively recruit home schooled students. Research verifies that a majority of home schooled children out perform their public school counterparts. These students, on average, score in the range of the 65th to 80th percentile on standardized academic achievement tests compared to the 50th percentile of the national school average (based largely on public schools) (Ray, 2010). Many areas of society today acknowledge, if not accept, home education as a viable education option.

Even with the continued growth of home education, Gaither (2009) points out that home school families need and appreciate help and support in the areas of curricular decisions and companionship for children and parents (p. 14). States and territories have

state and local home school support groups (see hsllda.org for listings) endeavoring to meet the needs of these families. Home school magazines and multiple websites also encourage and inform parents in the quest for a better home school experience for parents and children. Many local libraries and parks departments reach out to home school families as well. Networks of home school friends and acquaintances also offer insight and help.

Today, families choose to educate their children at home for various reasons, but a desire to pass on family beliefs and philosophy remains strong. Many home school families seek not only to educate their children but also develop a love of learning in their children to set them on the path of stretching themselves as they mature and move into adulthood. In the home school setting, parents or guardians take on the roles of teacher, guidance counselor, principal, and curriculum coordinator. Determining the curriculum that meets the family's goals for their children requires thoughtful decisions. Families must also be aware of state requirements for home schooling in their respective state, which range from minimal oversight to overly burdensome documentation (hsllda.org). Setting family goals, including discovering a child's learning style or personality type, gives valuable insight into a compatible curriculum, thereby narrowing the search of the various options available to home school families.

As families decide to continue home schooling their children through the high school years, the roles of curriculum coordinator and guidance counselor become even more important. In the public and private schools, guidance counselors are available to help parents make decisions. As teacher, guidance counselor, and curriculum coordinator, the home school parent or guardian sets the course of study, decides on the appropriate curriculum, creates and maintains a transcript, schedules achievement testing, and decides

when, where, how, and how often field trips and other outside activities will be attended.

In spite of the challenges faced, Johnson (2007) lists four general benefits to home schooling through high school: increased parental influence, reduced peer dependence, socialization, and early work opportunities (p. 6). Parents have a greater influence on their children through greater understanding of each one and his or her potential. Hendricks (1987) wrote in his book, *The 7 Laws of the Teacher*, that Sunday school teachers should get to know each student individually. "Find out as much about them as you possibly can" (p. 41). Many home schooling parents desire to know their children, individually, to accomplish more in the child's education while at home. Many look into evaluating strengths and weaknesses of their children. This study will address avenues to evaluate strengths and weaknesses of children, especially home schooled children, giving guidance in curricular choices.

Definition of Key Terms

Achievement tests: used to measure students for broad range of mental capabilities (Macklem, 1990)

Aptitude tests: used to measure abilities and predict scholastic performance by providing instructional, administrative, and guidance information (Macklem, 1990)

Barbe-Swassing's Learning Preferences/Modality: Auditory/listen; Visual/see and watch; Kinesthetic/physical or action (Tobias, 1994)

Course of Study: orderly learning to cover education courses taught by an instructor

Curriculum: materials used to educate children

Diagnostic Prescriptive Model: education based on evaluation of cognitive and emotional structure (White, 1998)

Duffy's Learning Styles: Wiggly Willy – learns best by doing; Perfect Paula – likes to see that everything is done correctly; Competent Carl – in control of himself and his surroundings; Sociable Sue – sociable (Duffy, 1992)

Dunn and Dunn's Environmental Preferences: productive learning environments including timing/alertness, food or snacks, lighting, location, and noise tolerance (Tobias, 1994)

Gardner's Multiple Intelligences: Multiple ways of being smart including Verbal/Linguistic; Logical/Mathematical; Spatial; Musical; Bodily/Kinesthetic; Interpersonal; Intrapersonal (Tobias, 1994)

Gregorc's Model of Learning Styles: Perception – the way people take in information: either Concrete (C) or Abstract (A); Ordering – the way people use perceived information: either Sequential (S) or Random (R) (Tobias, 1994)

Home school, home education: school instruction provided to children in the family home with parents as the primary instructor(s)

Home school support groups: people that meet together or keep in contact in some form to share resources toward informing and encouraging one another as home school families

Individual preferences and personalities: evaluating each child's "combination of emotional, behavioral, cognitive, and social skills and capacities" (Perry, 2011)

Kolb's Learning Styles: Accommodator – creative and flexible; Converger – Values what is useful and relevant; Assimilator – read to learn; Diverger – values positive, caring environments (www.schoolimprovement.com from class notes 2008)

Learning styles: patterns of behavior and communication affecting how students learn (Tobias, 1994)

Myers-Briggs Type Indicator (MBTI): tool used to evaluate psychological preferences (Wolf, 2009)

Personality type: preferences in nature and behavior affecting how an individual sees and lives life including Extrovert (E) or Introvert (I), Sensing (S) or Intuitive (N), Thinking (T) or Feeling (F), and Judging (J) or Perceiving (P) (Davis, 2010; Wankat & Oreovicz, 2004)

Philosophy of education: approach of education to accomplish desired goals (Duffy, 1992)

Philosophy statement: what an individual (or family) believes; for home school families: looking at goals for child/children's education, ownership of child/children, and man's nature (Duffy, 1992)

Problem solving: model used to evaluate students strengths and weaknesses involving evaluation of effectiveness of programs (Canter, 2004)

Self-efficacy: confidence in one's own ability to prepare for and perform assigned tasks (Golden, 2003)

Socialization: interacting with others in a social setting

Strengths-Based Education: evaluating students' talents/strengths for educating them accordingly (Anderson, 2004)

Strengths and weaknesses: areas where students excel or falter

Talents: ingrained, personal patterns of thought, feeling or behavior

Traditional schooling: formal education based on memorization and drill work

Unschooling: type of education that allows the child freedom to explore and learn from subjects and materials of his/her own choosing with minimal parental oversight (Duffy, 1992)

Viable option: feasible method producing a similar end result

Witkin's How We Understand information: Analytical/component parts, detail oriented; Global/overall picture (Tobias, 1994)

Statement of the Issue

What was your favorite subject in school? Did you have a favorite teacher? Did you have to work hard or did learning come rather easily? Home educators often search for the right curriculum or method or setting to fit their children. Parents share and compare ideas of what might help one child learn material that another child learned more easily. A family organizes their home and day in a way that seems to encourage learning. Would the same materials and incentives work for others? Would evaluating the strengths and weaknesses of children assist in determining the appropriate curriculum? The educational experience will be strengthened for the child and the parent through the benefit of recognizing each child's learning style and making curricular decisions in light of this information, thus better meeting each child's potential and dreams.

Cathy Duffy (1992) offers three basic steps for guidance in choosing curriculum for home schooling families. Families should first determine and write out *why* they desire to

homeschool. Recognizing basic philosophy regarding the family's beliefs provides a foundation. Duffy includes a sampling of questions for direction in this area. Second, build on that foundation of basic philosophy by voicing a philosophy of education, the *how* of educating. What approach to education best fits the family—traditional, unschooling, discovery/experiential, or a combination (p. 1-2)? This philosophy may change over time. As Duffy demonstrates, determining the basic philosophical belief statement will give guidance to determining the philosophy of education. Thirdly, discover the *what* or methods and materials to meet the desired goals for the education of children (p. 3).

The third step involves important factors that will help narrow the search. The age and number of children, experience and confidence of the one doing the teaching, level of support, and the philosophical beliefs of the family provide direction for curriculum choices. Time taken to discover the adults' and child/children's learning styles strengthens and narrows the choices for decisions on curriculum and methodology. Duffy includes charts to help identify learning styles and preferred learning situations (p. 7-9). She recommends using curriculum and methods that address the child's preferred learning style especially for new material but for reinforcement or review of material, using other styles to strengthen the child's weaknesses. Observing strong and weak subjects also allows for differences in methods of teaching.

Children learn in different ways through a variety of learning strategies. Parents gain understanding of their child's abilities through evaluations and reviewing the results. Achievement test results give a peek into a child's academic abilities but leave room for more information about where he or she is strong or weak in areas other than purely academic. This paper reviewed other forms of evaluations endeavoring to aid parents in

teaching toward learning styles (Fliess, 2008; Martin and Potter, 1998; Tobias, 1994) and personality types (Trent, 2011). Curriculum choices for different learning styles and personality types are included. Other possible teaching helps include strength-based education (Anderson, 2005; Henderson, 2005; Lopez and Louis, 2009), identifying strengths in the cognitive and emotional realm (White, 1998), discovering a child's niche (Perry, 2001), implementing problem-solving intervention evaluation (Canter, 2004), evaluating student aptitude (Macklem, 1990), analyzing data to address weaknesses (Danna, 2004), and Myers-Briggs Type Indicator or MBTI which discusses more detailed personality assessment (Davis, 2010; Wankat and Oreovicz, 2004; Wolf, 2009). Because MBTI must be administered by a certified professional (myersbriggs.org), this study referred parents to the website for further information. Often just a little more information allows the parent to better equip children through the home education experience.

Scope of the Study and Delimitations

An old Chinese proverb states, "Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime." As our oldest daughter approached her high school years, we thought hard and long on how to meet the requirements for graduation and how to address her strengths and weaknesses while implementing a course of study that stretched her in fulfilling her potential and abilities. Achievement test scores indicated she would do well academically. Though discovering strengths and weaknesses seems natural and obvious to some parents, we struggled to find direction in this area. Home school resources, whether support groups or magazines or web sites, included limited coverage of assessing student strengths and weaknesses. This paper addresses learning

styles or personality types and correlated curriculum options. Through learning style or personality type evaluation and other evaluation resources, useful information comes to light to gain greater insight into curriculum options to meet the needs of home school children. With a desire to instill a love of learning, the intended audience for this study includes home school families but recognizes the usefulness of the material by any parents desiring to contribute more to their children's education.

This study observed and evaluated fewer than ten home school children living in Ohio, USA, through the use of a questionnaire to learn about each child's learning style and personality traits. The questionnaire was based on information gathered from work by Tobias, Clarkson, Trent, and Wolf. With approval from parents, each participating child filled out the questionnaire covering learning styles and personality types. The data collected from the questionnaires was evaluated for each student and summarized. Each family involved in this study will receive a copy of their child's completed questionnaire and the resulting learning style and personality type information relating to him or her. They will also receive curriculum options for their child in subjects of math, English/language, history, and science. The information can be used to help guide home school families relative to their curriculum choices, daily schedules, and related educational activities, as they desire. Further studies could include more children, more evaluation sources, and a greater variety of cultures and regions.

Significance of the Study

Harris (1988), a home school dad, equates educating children with crafting arrows. Parents need to know the bend and characteristics of each "arrow" or child to produce

straight arrows for future use (p. 12). Not all children think and behave in the same way. Not all children learn the same way. Not all children have the same interests or talents. God did not create cookie-cutter people. When John Adams was young, he attended a local school where he lost interest in learning. After a discussion with his father, young John was transferred to a private school (McCullough, 2001, p. 33). The problem seemed to have been the teacher. After Adams was switched to the private school, his love for learning again took hold, allowing him to advance to Harvard at the age of fifteen. Families home school for various reasons, but undoubtedly the decision involves a desire for a better education according to the parents' standard. According to Danna (2004, p. 27) "Evaluating data and making changes is an arduous process," but home school parents willingly put in the time driven by the desire to give their children the best education they can provide. Observing and listening to children allow greater understanding of his or her individual ways and needs. Through testing and evaluation parents can also learn ways to educate their children in a way that increases the interest, rather than "killing" interest. Choosing the appropriate curriculum can renew excitement in learning.

Parents returned to the concept of home educating their children in the late 1960s and early 1970s. Public education more openly pulled away from the foundational, moral education of our founding fathers. Parents began seeing their children exposed to ideas and teachings that the parents disagreed with as good education. Schools reflect the values of society and not necessarily what is in the best interest of students. Public education began failing to truly educate children (Harris, p. 20). Though many home school parents lack a college degree in education and may have only a high school diploma, most have a love for their children and a desire to give them what they might not receive through public

education. By providing a few simple resources for evaluating various aspects of education, including curriculum choices, parents more fully achieve their educational goals for their children and narrow the search for the curriculum that fits the family and the children. By analyzing a child's learning style, frustration decreases as the parent implements ideas addressing evident differences. With better insight into a child's personality traits and how those traits help him or her learn, parents' decisions on what curriculum to use can be altered accordingly. Through a better understanding of a child's strengths and weaknesses, parents teach to the strengths and use those same strengths to address the weaker areas of learning. As Harris states, why settle for "mass-produced education" when we live in a country that allows parents to retain the responsibility of training their children in the way they believe to be the best (p. 20)? Parents can learn to unlock their child's ability to learn and focus (Mergens, 2013, p. 116). By understanding and working with a child's learning style and personality in mind, parents provide a stronger education and promote a greater love for learning.

For Christian families, knowing strengths and weaknesses allows for greater fulfillment of biblical mandates of stewardship, reconciliation, and educating a child made in the image of God. Stewardship teaches children to appreciate and apply God-given talents, abilities, and potential to be used as instruments in God's hands (Harris, 1988, p. 13). Reconciliation includes training in the proper handling of relationships with God, man, and each other. As godly image bearers, parents train children in academic and moral character to consciously bless and worship God (p. 79). As Harris relates educating children to crafting a good arrow, both ends must be prepared. Children demonstrate sharpness academically with a delicate guidance system (p. 64). Biblically based education

does not deify reason but prepares reason to respond to God. Christian home school families train their children both academically and morally to fulfill their potential in service for God.

Cynthia Ulrich Tobias (1994) devotes several books and a website to putting the idea of different learning styles into the hands of parents and teachers. She encourages parents to learn “how to recognize and appreciate learning styles” as a bridge to strengthen the learning experience of children (p. 9). Tobias covers five different learning style models helping parents gain understanding of the complexity and uniqueness of their children. These include Gregorc’s mind-styles, Dunn and Dunn’s environmental preferences, Barbe-Swassing’s modalities, Witkin’s analytical/global information processing, and Gardner’s multiple intelligences. Learning styles are “value neutral” meaning that no one style is better than the others (p. 143). As Tobias says, “The key lies in how you use your natural style strengths, and in how willing you are to learn or communicate in a way that may be difficult for you” (p. 143). Balance between strengths and weaknesses allows each individual to know him or herself and allow for and work with others’ differences. In her article, “Learning Styles: Working With Strengths and Weaknesses,” Fliess provides ideas to work with weak areas of the three different learning styles of auditory, visual and kinesthetic. “By learning to adapt to other styles, you will broaden your scope of influence and success” in your child’s life (p. 146).

In a radio program interview, Mike Smith of HSLDA asked John Trent (2011) for his description of general personality types. Trent describes four personality types represented by lions, otters, golden retrievers, and beavers. Lions take charge of situations. Otters enjoy having fun and are enthusiastic. Many people enjoy being around otters

because otters are a party waiting to happen. Golden retrievers tend to be quiet, sensitive, caring, and compassionate. The organized, detail-oriented beaver enjoys the opportunity to check things off a list, thereby showing completion and success.

According to Davis (2010) insight into personality determines a person's "psychological preference for consistent and enduring patterns of how the world is viewed, how information is collected and interpreted, how decisions are made and how individuals live out lifestyle choices" (p. 23). Those psychological preferences encompass four dichotomies of Extraversion (E) or Introversion (I); Sensing (S) or Intuition (N); Thinking (T) or Feeling (F); and Judging (J) or Perceiving (P). Parents in the home school setting gain greater potential of instilling a love of learning by acknowledging their own personality preferences and those of their children. Wolf (2009, p. 2-4) includes a Self-Assessment: Taking Inventory in her book, *CliffsNotes Roadmap to College: Navigating Your Way to College Admission Success*, to highlight student's strengths and areas needing improvement. Wankat and Orervicz (2004, p. 49) opine that greater understanding of personalities allows each person to connect with others of differing personalities. For a more in-depth analysis of personality types, the MBTI can be accessed through their website. The home school parent enhances the education of his/her child through better understanding of his or her personality and evaluating curriculum choices in light of that personality.

With an understanding of the strengths and weaknesses of their children, home school parents gain the opportunity to gear their child's education toward those strengths as well as use his/her strengths to assist in weaker areas. Anderson (2004) describes the strength-based education where strengths or talents are discovered through evaluations.

In his article “What is Strengths-Based Education?” Anderson presents the reasoning, benefits, and uses of strengths-based. Parents benefit from knowing their own talents by practicing with those strengths and thereby teaching their child to use his or her talents in their studies and life.

Parents who home school their children are more than just the teacher of the subject material. They take on the roles of principal, guidance counselor, and curriculum coordinator for their children. These roles become especially important during the high school years. For families facing frustration in their home school experience, understanding that all children are not alike can ease the frustration through learning about and implementing ideas regarding learning styles and personality types. Curriculum choices make a difference. With such a wide field of options, narrowing the chosen curriculum to compliment or correlate with a child’s learning style and personality type helps parents with these vital decisions. Home school parents must establish and know their philosophy of basic beliefs, educational philosophy, and curriculum and methods choices. Taking the time to determine learning styles and personality types and preferences more firmly secures decisions for choosing curriculum and how to work with children in the home school setting.

Methods of Procedure

How a child feels about himself or herself, or self-efficacy (Golden, 2003), plays a role in the learning experience. This study provides parents, especially home school parents, with tools to evaluate strengths and weaknesses beyond the area of achievement for their child. Ideas for determining curriculum choices addressing learning styles are

included in the study. Articles relating to strengths and weaknesses of students were located through Education Full Text, Education Research Complete, and ERIC databases, as well as web site searches. Perusal of personal books and magazines also provided information for this study.

As a result of the material and information gathered, this study was narrowed to learning styles, personality types, and curriculum decision guidance. A questionnaire was used to evaluate the learning style and personality type of fewer than ten home school students in a range of grades, mostly upper elementary. Parental approval for use of the questionnaire was obtained. Student names are kept confidential. Each student's responses provided information on his/her learning style and personality type. Comparison charts give guidance in matching curriculum options with learning styles and personality types. Each family received their child's original completed questionnaire and suggestions regarding curriculum choices related to his/her learning style. This information should prove relevant to each family by providing a greater understanding of each child's strengths in ways he/she learns and his/her personality type while providing guidance in decisions for corresponding curriculum.

"Train up a child in the way he should go and when he is old, he will not depart from it."
(Proverbs 22:6) A rich heritage means a great deal to people. As Jewish families pass on their history, so home school families endeavor to pass on to their children the truths and beliefs of their heritage.

CHAPTER TWO: PLENARY LITERATURE REVIEW

Educational Value in Personality/Learning Style Evaluations

“Prior to the advent of compulsory education in the 1700s, homeschooling was the primary form of education of the masses as the concept of hiring a teacher or tutor was available only to the elite” (Cogan, 2010, p. 19). What once represented fulfillment of the dream to educate the common citizenry later became a catalyst for the return of the home school movement in the 1970s. According to National Center for Education Statistics at nces.ed.gov, 1.1 million students were homeschooled in 2003, or 2.2% of school-age children ages 5-17. More recent reports indicate a continual growth to an estimated two million students in grades K to 12 by 2009 (Ray, 2010). Homeschool students garner the attention of colleges and universities through test scores, civic involvement, and academic abilities exhibited during college years (Wilhelm & Firmin, 2009). In fact, colleges and universities actively recruit homeschoolers (Romanowski, 2006). Homeschooling today is embraced by a wide variety of families for various reasons (Gaither, 2009) and is legal in all fifty of the United States.

Achievement tests, aptitude tests, and other forms of evaluation reveal pertinent information about students and may prove useful in curriculum choices that address their strengths and weaknesses (Danna, 2004; Macklem, G. L., 1990). Awareness of and understanding of strengths and weaknesses of the student and the teacher improve the learning experience (Davis, 2010). Research indicates awareness of personality and learning styles provides educational value through greater understanding of students and how they learn and process information (Clarkson & Clarkson, 1996; Davis, 2010; Duffy, 1992; Fliess, n.d.; Martin & Potter, 1998; Tobias, 1994; Wankat & Oreovicz, 2004). Martin

and Potter (1998) encourage parents to gain an understanding of their child's "unique learning and studying style" to advance positive effects on his/her education (p. 549). The program Strengths-Based Education involves learning about students' strengths or talents and gearing their education in light of that information (Lopez, S. J. & Louis, M. C., 2009). Greater understanding of personality and learning style enhances self-esteem and confidence in the individual—whether student or teacher.

Along with achievement and aptitude tests and portfolios, home school parents can delve into personality and learning style to gain a greater understanding of their child's strengths and weaknesses and also to guide in curriculum choices. Through the evaluation of their child's personality and learning style, parents gain greater appreciation of learning preferences thereby encouraging a more fulfilling education experience. Personality, often referred to as learning style, is expressed daily in the home-educated child (Clarkson & Clarkson, 1996). Tomlinson and Eidson (2003) refer to three curricular elements, content and process and products, which teachers can adapt for students' readiness, interest, and learning profile (p. 10). Home school families have the unique opportunity to educate children individually and challenge them to fulfill their potential (Harris, 1988). Evaluating a child's learning style, more common in the public school setting, is often an unused instrument for many home school families.

Defining Personality/Learning Style

In their book, *Educating the WholeHearted Child*, Clarkson and Clarkson (1996) portray personality as "the way one thinks—that is, how you gather information, organize it, and make decisions with it" (p. 144). Personality incorporates "inborn neurological

preferences, environment, culture, opportunity, family and experience” according to Davis (2010, p. 23). Personality accounts for the “natural differences” among students and teachers driving how information is perceived and acted on (Wankat & Oreovicz, 2004, p. 49). Learning style involves personality as well as environment and intelligences or “natural intelligence strengths” (Tobias, 1994, p. 130). Personality studies gather “subjective and observational” information and therefore cannot prove personality by applying the scientific method (Clarkson & Clarkson, p. 142; Duffy, 1992). With the study of personality, think of a nature study of butterflies leading to determining the similarities as well as the differences and forming groups according to similar patterns and characteristics (Clarkson & Clarkson). Myers-Briggs Type Indicator (MBTI) classifies people’s personalities according to perception, either sensation or intuition, and judgment, either feeling or thinking, and extraverts or introverts (Davis; Wankat & Oreovicz, 2004). The expression of one’s unique personality is affected by natural inborn qualities as well as input from their environment and others around them.

Learning style often refers to one of three natural ways children learn—visually, auditorily, or kinesthetically (Fliess, n.d.; Clarkson & Clarkson, 1996). Pride (1988) includes the sense of touch, tactile, as another learning style for taking in data (p. 138). Other aspects of learning include right brain or global learning and left-brain or analytical learning (Clarkson & Clarkson; Tobias, 1994). Authors discuss multiple intelligences or innate aptitude that influence learning style. Gardner lists the seven intelligences of linguistic or verbal, logical or mathematical, artistic or spatial, musical, bodily or kinesthetic, interpersonal or others, and intrapersonal or self reflective (Tobias; Clarkson & Clarkson). Beyond the original seven intelligences, Gardner added naturalist and

existential to his list (PBS). How students take in information reflects another aspect of learning style described through various terms depending on the author/creator. Four well known learning style descriptions include Gregoric's Concrete Random, Concrete Sequential, Abstract Sequential, and Abstract Random; Kolb's Accommodator, Converger, Assimilator, and Diverger; Silver's Self Expressive, Mastery, Understanding, and Interpersonal; and McCarthy's Type 4/Dynamic, Type 3/Common Sense, Type 2/Analytical, and Type 1/Imaginative (School Improvement from class notes, 2008). Combining evaluations of personality and the various aspects of learning styles provides the educator with information that can be used to better teach and reach or know his/her students. Through the use of personality and learning style evaluations, homeschool parents gain insight that may further guide teaching methods and curriculum leading to a more positive education experience for all.

Applications Using Personality/Learning Style

In an effort to provide a better education to more students, the education community continues to develop methods of evaluating students. As Silver (2009) describes his five principles for a thoughtful classroom, educators are committed to their students and improving the vision of teaching. Personality and learning style evaluations, although not the only method, are used to gain better understanding of students. Learning style evaluations are given to students as self-assessment tools (Wolf, 2009), as a tool to discover what lies within the individual (Davis, 2010), gaining greater self-understanding for students leading to self-efficacy and self-confidence allowing for the opportunity of academic improvement as one becomes aware of how to use strengths to learn as well as

overcome weaknesses (Golden, 2003, Martin & Potter, 1998), and for more effective teaching and communication as teachers adjust for natural differences in students (Wankat & Oreovicz, 2004). Personality and learning style studies benefit teachers and learners through a better understanding of individual differences, options in the variety of teaching methods and curriculum, and self-assessments for career ideas.

Home school families know their children well, but can also benefit from personality and learning style studies for the same reasons as others. Home educators have greater alternatives for curriculum choices because of the one-on-one teaching method involved. Teaching efforts can be augmented through knowledge of children's learning styles (Clarkson & Clarkson, 1996). Gearing teaching toward a child's learning style allows teaching new concepts through strong learning style and reviewing material through weaker learning styles, thereby building strengths out of weaknesses and gaining a greater appreciation in the child for differences in a range of people's learning styles (Duffy, 1992). Awareness of a child's personality/learning style within the home school setting opens the door to many options for curriculum choices as well as incorporating varying instructional methods to gear education toward that child. Even with multiple children in a family, each child's learning style can be considered to encourage a love for learning.

Methods Available to Determine Strengths and Weaknesses

Achievement and intelligence tests, aptitudes tests, learning style and personality type evaluations, and individual student portfolios provides information that allows educators to appreciate a student and his/her capabilities. "Achievement tests tend to measure recent learning" relating to specific school subjects (Macklem, 1990, p. 2).

Achievement test results are usually included in a student's academic records and may be used to compare multiple students and their performance. This picture of the student provides a look into strengths and weaknesses of what has already been learned or achieved. Aptitude tests offer clearer information on future scholastic ability, ways of comparing performance among children, a profile of strengths and weaknesses, differences among individuals, and hidden talents in some children. "Teachers can use aptitude test results to adapt their curricula to match the level of their students, or to design assignments for students who differ widely" (Macklem, 1990, p. 3). Student portfolios also demonstrate what a student has learned through actual work. Test results and individual student portfolios aid schools and parents to better understand and guide the student body and individual students according to what has been achieved or what may be previously unnoticed potential.

Personality and learning style sheds light on more of the HOW a student studies and learns and thereby can be used to adjust instructional methods as well as curriculum to meet each student's strengths and weaknesses in learning. Martin and Potter (1998) point out that parents may be unaware of their child's learning style. The study of personality should be a "secondary issue" in education activities (Clarkson & Clarkson, 1996, p. 142), in part because a young child is still developing personality through God's design and their living experiences. Nevertheless, personality type and learning style provide further insight into the individual and learning capabilities. Adolescents become more comfortable with individual personality while growing into adulthood, where the personality develops and matures more fully. Clarkson and Clarkson provide variables to the expression of one's personality that include character training, biblical values, weaknesses, temptation, sin,

spiritual gifts, life experiences, and masculine and feminine traits (p. 143). Awareness of learning style allows the teacher and/or parent to tailor teaching toward the weaknesses and thereby strengthen the weak areas of the student (Fleiss, 2008) “A basic understanding and better appreciation of our own strengths and weaknesses, as well of others, can assist in augmenting the process of human relationships, both in and out of the classroom” (Davis, 2010, p. 28). Though knowing a child’s personality and learning style strengthens the education experience for the teacher and the child, the gained information should not take the place of good curricula but can guide both curriculum and how material is presented to each child.

Benefits of the Study of Personality/Learning Style

“Educators worldwide search for efficient and motivating ways in which to teach, to connect with students and to encourage success in the classroom” (Davis, 2010, p. 22). Martin and Potter (1998) point out the benefits when educators and parents work together to understand how students study and learn. Even students profit when aware of how to better study and learn through an understanding of their learning style. Martin and Potter give suggestions for the process of educating and working with parents regarding their child. After a student has taken a learning style inventory or completed a learning style questionnaire, Martin and Potter recommend that the teacher discuss the results with the student, then the parents, then parents and student together. Following all this, the teacher should help the student plan for classes and how to best work with individual teachers keeping individual learning style in mind. Wankat and Oreovicz (2004) remind teachers “to teach or communicate effectively on campus you must account for natural differences

among your students” (p. 49). Using the Myers-Briggs Type Indicator (MBTI), teachers gain insight into their students’ personality/learning styles, allowing greater understanding and more beneficial teaching.

Likewise, home educators benefit through a better understanding of their child’s personality and learning style for similar reasons. Parents that educate their children at home gain insight through the use of personality and learning style evaluations. As in the public school, curricular decisions can be adjusted through input of learning style evaluation results. Clarkson and Clarkson (1996) point out the opportunity for home school parents to maximize teaching efforts by understanding each child’s learning style. According to Duffy (1992), “the proper approach [to learning style application] is to use methods which work best for each child when introducing new or difficult subject matter while incorporating other methods when they are not as likely to produce failure” (p. 8). Why does it matter about children? Joshua Harris (2011) discusses in his book, *Dug Down Deep*, the importance of knowing his daughter. “An important part of caring for and cultivating a relationship with my little girl involves my willingness to learn her character and personality, her likes and dislikes. Details about her—the color of her hair, the music she enjoys, her gifts, fears, and dreams—are all important to me because *she* is important to me” (p. 30). Though there may be different reasons for home schooling (Gaither, 2009), parents have chosen to educate their children at home with strong enough reasons to keep them home schooling despite costs, roadblocks, and difficulties. Understanding the learning style of the parent or teacher and the child broadens the education experience through the impact on instructional methods used and curriculum choices.

“What would it take to design a curriculum and facility that would not only qualify our students for university work, if they chose that path, but also prepare them to be leaders in their new nation?” (Hennesey & Baker, 2011, p. 172). Though Hennesey refers to educating young people of Kosovo, education anywhere involves knowing students well enough to prepare them for leadership roles where their interest takes them. Home schools families work to provide a solid education that will equip children to fulfill their potential. As Harris (1988) states in his book *The Christian Home School*, home schooling involves responsibility. Parents are stewards of their children and benefit from knowing the bends and characteristics of each child (Harris, 1988) endeavoring to produce “arrows” (i.e. children) ready to “exercise Godly dominion over His earth giving honor and glory to Him” (p. 12) with their lives. The tool of knowing personality and learning style adds to the toolbox of the homeschool parent for providing a stronger education through greater understanding of each child.

Results of the Study of Personality/Learning Style

Parents can learn to unlock their child’s ability to learn and focus (Mergens, 2013, p. 116). By understanding and working with a child’s learning style and personality in mind, parents provide a stronger education and promote a greater love for learning. An effective teacher impacts students’ achievement. Effective teaching encompasses “all aspects of what goes on in the classroom between the teacher and the student” (Dozier, 2012). In his article, *Every Student Can Learn - If . . .*, Arthur W. Chickering (2006) replaces the old three R’s of reading, riting, and rithmetic, with recognize, respect, and respond “to wide-ranging individual differences among diverse learners” (p. 9). In the same article, Chickering notes

the importance of helping students “become more reflective and thoughtful about how they learn best” (p. 12). Chickering’s article refers to incoming college and university students. What a benefit for junior high and high school students to recognize and already study and learn within their individual learning style, respect the different ways of learning for themselves and others, and better understand how to respond to differences between their learning pathway and that of others.

“Everybody knows somebody who is teaching a child at home” (Gaither, 2009, p. 11). Parents who home educate their children retain an even greater opportunity than their public or private school counterparts to positively impact their child’s education. Home school families have more latitude in selecting curriculum and instructional methods to be used in the school setting. Greater opportunity is available not only to teach to strengths but also strengthen weak areas by working with how lessons are taught as well as what is taught (Fliess, 2008). In her article, *Learning Styles: Working With Strengths and Weaknesses*, Fliess provides Dr. Gloria S. Rothenberg’s ideas for addressing weaknesses for auditory, visual, and kinesthetic learners. Children weak in auditory learning may benefit from the use of visual clues to guide behavior. Visually weak learners benefit from direction of “how” different parts of a diagram relate to each other. Children with kinesthetic weaknesses benefit through a verbal plan that guides them through the sequential steps to accomplish the goal (Fliess). Home school families have opportunity and tools to prepare their child for life after high school through the one-on-one style of teaching as well as mutual discovery of personality and learning style.

Thought is natural, purposeful and purpose seeking, strategic, a dialogue with self and others, and personal and a matter of style (Silver, 2009, p. 5). With approximately two

million school-age children participating in home education, applying learning style results enhances the home school setting. As Howard Hendricks (1988) writes, “The problem with education today is that most teachers give out fruit rather than plant seeds” (p. 14).

Hendricks proposes three goals for education: “teach people how to think, how to learn, and how to work” (p. 61-66). Parents who willingly sacrifice to home educate benefit through the discovery of each child’s personality and learning style to aid in the method of teaching and the material or curricula chosen. According to Duffy (1992), “By identifying learning styles as best we can, we are able to choose teaching methods and materials that are more likely to be successful for each child and adapt what we are doing to teach them more effectively” (p. 6). Different learning styles benefit from different curriculum and different methods.

According to Davis (2010), the “foundation of teaching and learning lies within the individual” (p. 22). She relates her experience with “Andy” and his performance in his studies. Andy’s ability at the piano demonstrates a passion and interest, and his SAT scores “far exceeded the norm” (p. 23), but Andy struggled with the International Baccalaureate (IB) curriculum he was pursuing. Through observations and discussions with Andy and evaluation using the MBTI, Davis discovered factors contributing to Andy’s academic difficulties. “The more a child understands about her/himself, the greater self-esteem and confidence she/he will have” (Martin & Potter, 1998, p. 549). Individual personality awareness allows choices in curriculum and coping techniques for the student drawing that student toward an interest in and hopefully a love for learning.

Recognizing differences in personality and learning style between the teacher and the student provides more harmony in the education setting. According to Wankat and

Oreovicz (2004), when both student and teacher recognize each others' personality they more fully labor together as they allow and work with the differences in mind. Greater understanding of the different ways of perceiving, or taking in information, and judgment on decision making allows different styles to learn from one another.

In their book, *Differentiation in Practice*, Tomlinson and Eidson (2003) include a chart laying out ideas for working with different student traits, teacher responses, and whether the examples demonstrate differentiation in content (the what or how), process (activities), and/or products (evidence of what was learned) (p. 12-13). The underlying goal is to "select instructional strategies to help . . . match curriculum and instruction to learner need" (p. 11). Tomlinson and Eidson share an example of differentiation at a baseball camp where improvement is realized for the team as a whole through individual improvement because of studying and working with individual differences and encouraging the campers and asking for their best (p. 14). Though home education takes time in and of itself, families that home educate have a greater opportunity than many other parents to tailor education to draw out children's best and encourage growth in weaker areas through adjusting the curriculum and instruction according to personality and learning preferences.

Wolf (2009) provides a checklist for taking inventory of personality, academic history, extracurricular activities, talents/abilities, and college preferences as a self-assessment in preparation for college and career opportunities. Some public schools provide these tools to students while some require this type of self-assessment. Home schooling parents, as guidance counselors and more, benefit through the use of similar checklists for their high school student. Recognizing strengths and weaknesses, setting

goals, and staying focused on a career are just a few determining factors for building “self” survival skills” (Golden, 2003, p. 15). Even at a younger age, personality and learning style aids the home school family in decisions regarding the every day work of school by going beyond achievement and aptitude testing.

Danna (2004) demonstrates the benefit of analyzing data from testing results to shape strategies that work with or highlight and address student weaknesses. As the teachers and administrators of the Glens Falls, NY, school district sorted through the data on students, strategies were developed to strengthen weaknesses in the students. “Evaluating data and making changes is an arduous process, but the successes teachers have experienced in helping students learn have energized them as never before” (p. 27). The time spent sorting through the students’ information encouraged students and teachers giving the teachers a “sense of empowerment” (p. 27) making a difference in the lives of each student. Add to testing results and other common academic assessments the understanding of personality and learning preferences and increase the positive input from teacher to student and thereby inspiring the teacher to continue on.

The debate continues regarding the relevancy of learning style and the effect on teaching and learning. Wallace (2011) presented researchers’ opinions on the debate regarding the connection between learning style and instruction methods and materials. “More than 25 years of research on this and related themes have not provided any form of conclusive evidence that matching the form of instruction to learning style improved learning or even attention” (Wallace quoting Stolovitch). Other researchers in Wallace’s article agreed that positive conclusions had not been found through research reviews. One contributor, Pearlstein, related his experience with a research assignment with the US

Navy. He concluded that the methodologically rigorous research “vividly illustrated to me the trouble with learning styles: They don’t work” (Wallace quoting Pearlstein). The researchers held to the idea that learning style effect is a myth and not validated through scientific research. However, Marilyn Force (2011) presents examples of the benefits of learning style input for people affected by anxiety disorder.

Clarkson and Clarkson (1996) remind homeschooling parents that personality/learning style indicators are only tools that aid in better understanding a child, but children change over time as they mature and learn. Personality and learning style are given by God as shown in the example of Esau and Jacob in Genesis 25, but God uses nurturing to shape and further develop the child or individual (Ephesians 6:4). The tool proves useful, but will not be the only factor to determine the what and how of education. A child’s good education should not hang solely on the personality evaluation results (Clarkson & Clarkson). Duffy (1992) also provides insight stating, “use methods which work best for each child when introducing new or difficult subject matter while incorporating other methods when they are not as likely to produce failure” (p. 8). Duffy further encourages parents to stretch children through the use of other learning styles on review work or to reinforce learning providing growth and greater understanding of others. Home school parents already possess a great deal of information about each of their children. Learning can be more enjoyable and more beneficial with the understanding and appreciation of differing learning styles. As the student and teacher gain confidence through better understanding and use of the knowledge of individual styles, a love for learning and a greater bond between the child and the parent deepens.

CHAPTER THREE: METHODOLOGY

The Method

As home school families head into the high school years with their children, thoughts revolve around the outcome and desired pathway to encourage children to achieve their potential with the abilities they possess. Delving into areas of strength and desiring to strengthen the weak areas, parents gather information and make choices on curriculum and instructional methods to fit their children and their family situation. Searching beyond the achievement and aptitude tests in the quest for each child's strengths and weaknesses, personality type and learning style play an important part in how a child learns, and therefore, decisions about curriculum and methods. Following the completion of a pilot study, this research studied a sampling of home educated children to determine their general personality traits and learning preferences as an additional source in conjunction with achievement and aptitude test results to provide a guide for selecting curriculum and instructional methods, especially those home school families with students headed into the high school years.

Why This Method

Initially the intent of this project involved learning about strengths and weaknesses of students in the home school arena in preparation for the high school years. Achievement tests, aptitude tests, and individual portfolios give partial pictures of a student's strengths and weaknesses. Personality type and learning styles provide further information and, as a result, became the focus of this study. The Institutional Research Board (IRB) of Cedarville University granted approval for this study. Johnson and Christensen (2008) in

their book *Educational Research: Quantitative, Qualitative, and Mixed Approaches*, state that “Many personality tests are of the **self-report** variety” (p. 159). Therefore, a self-report questionnaire seemed an appropriate method of discovering students’ personality and learning style for this study. After consulting numerous references, a questionnaire was developed (c.f. Appendix A). Parental permission for each student to participate in the study was attained by means of a signed form. Each student also signed the form. Students then filled out the questionnaire. Following the completion of the questionnaire by the students, a chart was created showing the range of personality type and learning styles represented by these students. A further series of charts guides home school parents through steps for making curriculum decisions to include personality type and learning style as part of the decision making process. Thus the purpose of this study was to gain insight into students’ personality type and learning style as a tool to be used in making curriculum and instructional method decisions.

The Study Population

Where has God placed you, and what has he given you to work with? Evaluating personality and learning style provides information about an individual. The resulting information can influence individuals and others interacting with them. This study included pre-high school home school children. The children completed the questionnaire providing information about their personality and learning styles. The questionnaire used for this research was gleaned from Tobias’ book *the way they learn* and web site applest, Trent’s interview on HSLDA’s radio program (Nov. 2011), Wolf’s book *CliffsNotes Roadmap to College: Navigating Your Way to College Admission Success*, and handouts from School

Improvement from a class taken in 2008. The gathered information has potential to contribute to the curriculum decision process for home school families.

Clarkson and Clarkson (1996) relate the idea that young children have untouched personalities that continually form through experiences and other influences, early adolescents become more comfortable in their personality, and adults “have developed a full and mature personality” (p. 143). When evaluating children, parents should realize that the younger the child, the less personality has developed and the less self and personality are understood. Parents would gain further insight regarding each child’s personality by following the questionnaire with personal observations of each child through the use of Duffy’s Preferred and Disliked Learning Situations chart (1992, p. 9) or Clarkson and Clarkson’s Learning Style and Personality Type Indicator (p. 151).

The Study Sample

Nine students participated in this study by completing the questionnaire. They were all part of a home school co-op for upper elementary students. The male and female students varied in age from nine to thirteen. All live in southwestern Ohio. Being a tutor for the co-op provided the opportunity to complete the questionnaire stage of the study during the regular timeframe of the co-op.

The purposive, convenient sample chosen for this study included home schooled students that had not yet entered high school in their studies. Granted parental permission confirmed the students would be available for the study. Familiarity with the students allowed for greater interaction and a certain pre-knowledge about the students. A one-time meeting with all the students permitted the students to fill out the questionnaire at

one time within a more typical setting. Both boys and girls participated in the study sample.

According to Johnson and Christensen (2008, p. 158-159), personality tests can be administered by way of the self-report inventory, performance measure, or the projective measure. For this study the self-report inventory was used. Johnson and Christensen state that self-report inventories involve weaknesses such as respondents faking good or bad through their answers. Another weakness involves differences in individuals' response styles (p. 159). Observing the students and answering their questions as they filled out the questionnaire evidenced a lack of understanding on their part and produced unclear answers for some sets of questions. Many answers lacked clarity because the children struggled to relate to some of the questions with either/or answers. This self-evaluation inventory showed vulnerability to contamination as evidenced by various students' multiple middle-of-the-road answers. The results maintain support for the benefits of using personality and learning styles as guidance to curriculum choices. Programs such as Clifton StrengthsFinder™ Themes "represent a return to basic educational principles that emphasize the positive aspects of student effort and achievement, as well as human strengths" (Lopez and Louis, 2009, p. 1) evaluate talents. Chickering's (2006) article refers to awareness and encouragement in students' individual learning styles. Multiple articles and studies tout the benefits of evaluating learning styles as a basis for curriculum and instructional methods, including Davis (2010) who promotes the idea of teaching and learning based on individual preferences and personality (p. 22).

The Procedure

Can knowing children's personality and learning style assist in determining a good fit in curriculum for their high school years? In their research report Coffield, Moseley, Hall, and Ecclestone (2004) review in detail thirteen of the most influential learning style models. Each section on a theory ends with a chart covering the strengths and weaknesses of that theory including the topics of general strengths and weaknesses, design of the model, reliability, validity, implications for pedagogy, evidence of pedagogy impact, overall assessment, and the key source. Referring to research using Kolb's Learning Styles Inventory (LSI), as an example, the authors refer to positive results.

More positively still, Katz (1990) in a quasi-experimental study of 44 occupational therapy students in the US and 50 in Israel, hypothesized that students whose learning styles matched the teaching method would perform better (ie more effectively) and would need less time to study outside class (ie more efficiently). The findings in both countries supported the premise that 'the better the match is between students' individual characteristics and instructional components, the more effective or efficient the learning program is' (Katz 1990, 233). But even this conclusion needed to be qualified as it applied only to higher-order cognitive outcomes and not to basic knowledge (p. 67).

They continue with the following assessment:

The age of the learner appears to be crucial, as there was evidence that matching improved academic performance in primary education in the US; but the evidence in higher education generally, and in nursing more

particularly, was inconclusive. (p. 68)

Home school families generally educate children during the elementary through high school years.

To determine the personality and learning style of the subjects for this research, a questionnaire was developed that covered personality type, learning style, and multiple intelligences by merging the works of Tobias, Trent, Wolf, and information from School Improvement included with a class taken in 2008 discussing all three areas. The questionnaire included nine sections ranging in size from one to ten questions or comparisons. Questions regarding personality included extrovert/introvert, sensory/practical or concrete, thinking/feeling, judging or organized/perceiving or flexible. Learning style questions covered auditory, visual, and kinesthetic preferences, as well as processing information through global or analytical tendencies. Environmental questions regarding location, noise level, lighting, temperature, and food preferences were included. Students checking any of the seven intelligences they thought applied to them addressed the area of multiple intelligence. Attention was given to the words used in an effort to allow students to understand the question meanings.

Following the acquisition of signed permission forms from the parents as well as the children involved, the students completed the questionnaires during a co-op class. Two students completed the questionnaire in their home later that same day. Through the use of nominal scales a chart was created to include the data collected, concluding with comparisons of the frequency of the different personality and learning styles and the different ages.

The questions were drawn from reliable sources but were meshed into the final questionnaire in an effort to make the questionnaire understandable and appealing to children. The students involved in the research did not fully understand all of the questions, producing some ambiguous answers. Certain areas, such as the environment and learning style sections, produced clear-cut answers with little or no questions from the students. Unclear answers and questions about wording, especially in the Personality and Describing Yourself sections, lessen the reliability of the instrument. A better evaluation form, such as a performance measure accomplished through a one-on-one interview, would produce more definitive, reliable results. Nevertheless, the use of personality and learning style as a factor for curriculum choices remains valid as noted in various articles and studies (c.f. p. 18 and 29).

The pilot study did show the need for clearer questions and layout of the questionnaire. Also shown in the pilot study was the impact of age. The pilot study subjects were in their teens and demonstrated a greater understanding of the questions as well as less ambiguity of personality and learning preferences. As noted by Clarkson and Clarkson (1996) children under the age of thirteen probably do not have enough experience to recognize their preferred mental tasks. Around the seventh grade, children begin to differentiate and better understand themselves (p. 149). As a guide for curriculum choices for the high school years, personality and learning style evaluations would be best completed during the middle school or junior high school years.

Data for this research project was collected through the self-report questionnaire. The chart created visualizes and compares the data collected. Additionally, a guide was developed to guide home school parents through a process of determining curriculum for

their children's education. This guide begins with the work of Cathy Duffy from her book, *Christian Home Educators' Curriculum Manual Elementary Grades*. The step-by-step progression of the guide is further developed through multiple sources to include the use of personality and learning styles.

Home school families have many options to choose from for curriculum and instructional methods including computers, traditional textbooks, unit studies, on-line classes, multiple venues, classical studies, limited textbooks, self-guided learning, DVDs, and many more. This research project does not determine the validity of using personality and learning style in curriculum decisions but only highlights the option of using them as an aid to narrow the curriculum and instructional choices. The home school community demonstrates a desire to provide an education for each child that produces capable adults to benefit the community as a whole. Many continually search for the right curriculum or materials and the right method to effectively teach and train their children throughout the home school experience. As Harris (1988) records in his book, *The Christian Home School*, home school parents train their children as arrows with academic sharpness and moral strength for guidance (p. 64). Continual modification of methods and materials occurs to better educate each child in the home.

This research project encompasses little if any ethical issues. Student names or personal identifiable information will not be revealed. The students' names have been removed and replaced with numbers. No demeaning labels are included in the questionnaire, related reports, or the paper itself. The participating home school families confidently provided data asked for with this research project and have demonstrated eagerness regarding the information about their child's personality and learning style.

Variables within this project include personality type, learning style, gender, and age but were not used as a form of measure or manipulation since the goal of the project sought only to provide personality and learning style information as an aid or guide in curriculum choices for home school families.

According to Wallace (2011), designing instruction according to learning style “has no basis” relying on decades of research on the validity of learning style’s effect at predicting acquiring or retaining knowledge (paragraph 1 of article). Wallace relates comments provided by Harold Stolovitch who said, “More than 25 years of research on this and related themes have not provided any form of conclusive evidence that matching the form of instruction to learning style improved learning or even attention.” In a response post Donald Clark (7 Dec. 2011) responds,

One of the most profound statements in the paper, at least to me, is (p68):
‘just varying delivery style may not be enough and & the unit of analysis must be the individual rather than the group.’

That is, when you analyze a group, the findings often suggest that learning styles are relative unimportant, however, when you look at an individual, then the learning style often distinguishes itself as a key component of being able to learn or not. Thus those who actually deliver the learning process, such as teachers, instructors, or trainers and are responsible for helping others to learn see these styles and must adjust for them, while those who design for groups or study them see the learning styles as relative unimportant (drawing from Coffield, Moseley, Hall, & Ecclestone’s *Learning styles and pedagogy in post-16 learning: A systematic and critical review*).

For home school families, the individual remains the subject of study. In their discussion of learning styles, Coffield, Mosely, Hall, and Ecclestone write about the “pedagogical triangle of teacher, students, and subject” (p. 127) and the validity of tailoring instruction to particular learning styles. Home school parents have the opportunity to address the use of learning style more fully than the teacher in a classroom full of students, since the parents are teaching subjects to their children only. The questionnaire produced and used in this research project covered different areas from different angles, which should have produced agreement for the different topics covered. Personality and learning style become tools in the hands of home school parents to better understand their personal teaching style and the learning style of each child. They also provide input for guidance into selecting curriculum.

CHAPTER FOUR: RESULTS AND ANALYSIS

Introduction

With a desire to regain control over their child's education, parents returned to the idea of home school for their children. What once provided an education for all children in the United States slowly moved away from the foundational underpinnings of the Judeo-Christian culture, taking with it young adults that no longer held to the beliefs of their parents through the teachings of the public schools. Since the 1970s the popularity of home school has increased. As Gaither (2009) declares, "Everybody knows somebody who is teaching a child at home" (p. 11). In the 1960s and 1970s two main groups, Christian fundamentalist and the countercultural Left, pulled away from the public schools and began to educate at home. Through years of challenging the legal system, home school became legal in every state by the early 1990s. Each state has its own set of regulations governing home education. Today, reasons for home schooling include special needs, physical or mental health problems, school environment, instruction quality, religion or morality, and other reasons (Gather, p. 12). Support groups can be located in most every state, territory, and some overseas military facilities. Home School Legal Defense Association (HSLDA, 2013) was established in 1983 as a legal advocacy resource for home school families. Today HSLDA provides legal advice, representation, state laws, forms, support group information, curriculum information, support, and other information and help for home school families. Resources abound in the effort to continue providing those families desiring to educate their children at home.

A description of a typical home school setting, curriculum, and method encompasses the imagination of the parents. Schooling may be taught at the dining room table, outdoors,

in special designated areas in the home, while traveling on the road, virtually anywhere—even at the beach or in the mountains. Parents may use the traditional book/workbook curriculum, a combination of various curriculum, classical studies, whole book studies, unit studies, nature studies, CDs or DVDs, on-line materials, long-distance schools, unschooling, discovery learning, co-ops, group tutoring, or any combination of the preceding options. State requirements for home schooling influence the curriculum choices as some states have less restrictive laws and other states have more comprehensive requirements. The teacher in the home school environment might be the parents, co-op tutors, online tutors, private tutors, CD and DVD tutors, the individual student learning on his/her own, or any combination thereof. Setting, curriculum, instruction, and teachers for home school families include a wide range of options. Determining the best for each involves decisions, and the use of personality and learning style provides an additional tool to narrow the search.

The Data

For this research project information was gathered relating to methods of discovering strengths and weaknesses of students. Information regarding strengths and weaknesses can be determined through achievement and aptitude test results, portfolios, observation, and personality and learning style evaluations. This study focused on personality and learning style evaluations as an aid to home school families in the decisions involving curriculum to best meet the family goals and encourage children to fulfill their potential with what God has given them.

Exploring personality type and learning style provides insight into individual preferences as a means to greater understanding of students and learning potential. Personality and learning style also allow for possible adjustment in teaching methods and materials. Force (2011, para. 20) explains, “Are not learning processes that are misunderstood barriers and impediments to learning? How can you help a student if you do not understand how they learn?” Greater understanding of each student aids teaching. In the home school setting, knowing children benefits and can have a greater impact in decisions made in methods and materials to be used.

“Personality is a blend of numerous factors including inborn neurological preferences, environment, culture, opportunity, family and experience” (Davis, 2010, p.23). One of the more common personality type evaluation tools was produced through the work of Isabel Myers in the development of the Myers-Briggs Type Indicator (MBTI). The MBTI involves a self-report inventory covering four dichotomies including Extraversion (E) or Introversion (I), Sensing (S) or Intuition (N), Thinking (T) or Feeling (F), and Judging (J) or Perceiving (P) producing sixteen combinations of personality type shown in a chart at the Myers Briggs website. Less formal personality evaluations also exist, such as Wolf’s (2009) inventory (p. 2). Evaluating personality type leads into evaluating learning styles as evidenced in the work of Clarkson and Clarkson (1996) in their book, *Educating the WholeHearted Child: A Handbook for Christian Home Education*. Clarkson and Clarkson produced a Learning Style and Personality Type Indicator covering personality traits and learning style traits including Doer, Helper, Shaper, Mover, Facts and Logic, Facts and Values, Insights and Logic, Insights and Values, and Active or Reflective mental focus (p. 151) to gain greater insight into the individual.

Learning style encompasses the general way someone learns or how one gathers information, organizes that information, and uses the information in the decision making process (Clarkson and Clarkson, 1996, p. 144). Tobias (1994) presents five leading research models including Mind-styles (Gregorc), Environmental Preferences (Dunn and Dunn), Modalities (Barbe-Swassing), Analytical/Global Information Processing (Witkin), and Multiple Intelligences (Gardner). Kolb, Silver/Strong/Hanson, and 4Mat/McCarthy are presented along with Gregorc through School Improvement. Coffield, Moseley, Hall, and Ecclestone (2004) provide a thorough overview of thirteen of the “most influential” (p. ii) learning style models including Gregorc, Dunn and Dunn, Riding, Myers-Briggs Type Indicator, Apter, Jackson, Kolb, Honey and Mumford, Herrmann, Allinson and Hayes, Entwistle, Vermunt, and Sternberg. Figure 1 includes information gleaned from Tobias’ book, *the way they learn: how to discover and teach to your child’s strengths* describing learning style, environmental, modality, and multiple intelligence information. Schoolimprovement.com describes learning styles through Kolb’s Accommodator, Converger, Assimilator, Diverger; Silver/Strong/Hanson’s as Self Expressive, Mastery, Understanding, Interpersonal; and 4 Mat/McCarthy as Type 4/Dynamic, Type 3/Common Sense, Type 2/Analytical, Type 1/Imaginative. Duffy (1992, p. 7), using Dr. Keith Golay’s work, depicts adult learning styles with Type A/Actual Spontaneous Learner, Type B/Actual Routine Learner, Type C/Conceptual Specific Learner, and Type D/Conceptual Global Learner. Learning style indicators or types indicate how individuals learn, retain, and use knowledge.

Figure 1*Learning Styles, Environmental, Modality, Multiple Intelligence*

Learning Styles (Gregorc)	Concrete Sequential/ Facts: practical; organized; efficient & economical ideas; concrete products from abstract ideas; works well within time limits	Abstract Sequential/ Underlying Principles: data before decisions; analyze ideas; research; logical sequence; facts to prove or disprove theories; analyze means to achieve goal	Abstract Random/ Personal Relevance: sincere listener; understand feelings & emotions; focus on themes & ideas; harmony for group situations; good rapport with most people; recognize emotional needs of others	Concrete Random/ Compelling Reasons: inspire others to take action; viability of many options & solutions; unusual & creative ideas; visualize future; finds different ways to accomplish things; accepting of people; thinks fast on feet; risk taker
Environment/ Concentration (Dunn & Dunn)	Noise level: <input type="checkbox"/> None <input type="checkbox"/> Quiet <input type="checkbox"/> Anything goes	Lighting: <input type="checkbox"/> Bright <input type="checkbox"/> Minimal <input type="checkbox"/> Natural	Heat: <input type="checkbox"/> Warm <input type="checkbox"/> Cool	Food: <input type="checkbox"/> None <input type="checkbox"/> Light snacks <input type="checkbox"/> Food available
Modality/Remember (Barbe-Swassing)	Visual: Learn by seeing & watching; using strong visual associations; mental pictures	Auditory: Learn by listening to verbal instructions; remember by forming sounds of words; rhythmic patterns	Kinesthetic: Learn by becoming physically involved & doing something with what's being learned; movement	
Dominant Learning Style/Understand (Witkin)	Analytic (field independent): break down information into component parts; focus on details		Global (field dependent): Overall picture/gist; details not so important	
Multiple Intelligences (Gardner)	Linguistic: reading, writing, word games	Logical-Mathematics: experimenting, questioning, puzzles	Spatial: designing, drawing, visualizing, doodling	Musical: singing, whistling, humming, tap feet & hands, listening
	Bodily-Kinesthetic: dancing, running, jumping, building, touching	Interpersonal: reading, organizing, relating, manipulating, meditating	Intrapersonal: setting goals, meditating, dreaming, being quiet	

Source: Cynthia Ulrich Tobias, *the way they learn: How to discover and teach to your child's strengths*

Pulling together personality and learning style questions and ideas from various sources, a questionnaire was developed for this research project. The questionnaire (Appendix A) included questions relating to the following information: student information, learning preference, learning style, personality type, environment preferences, multiple intelligence, information processing, favorite subject, and gender. The goal of the questionnaire was to reveal personality and learning style preferences of the students for the purpose of recommending possible curriculum matching students and their learning preferences as a tool to guide parents when making curriculum decisions.

Home school families have a multitude of options for curriculum. The decisions made may be based on personal past experiences, recommendations from other home school families, extensive research, recommendations from home school co-ops or programs, or the trial-and-error method. Duffy (1992) begins her work with a chapter titled "How to Choose Curriculum" (p. 1). The areas of why, how, and curriculum choices serve as a guideline for beginning the process. Duffy also covers curriculum recommendations, major publishers, and separate chapters covering curriculum options for different disciplines to be taught. In the manual, Duffy reviews home school curriculum relating to Bible, thinking skills, language and reading, composition and grammar, spelling and vocabulary, handwriting, speech and listening skills, math, science, history/geography/cultural studies, the arts, physical education and health, foreign languages, unit studies, testing, and sources for materials. The manual (1992), web site, and a more recent book titled *101 Top Picks for Homeschool Curriculum* (2005) provide abundant information for home school families. The steps for making curriculum decisions for this study involve setting family goals, determining the learning style of the parent or

teacher, determining the learning style and preferences of the student, discussing post-high school options, knowing state standards, and comparing and choosing curriculum. Other factors are involved in curriculum decisions, but this study focused mainly on the use of personality and learning style.

Data Analysis

General Information:

The questionnaire was presented as a self-assessment inventory. The nine students involved in this study consisted of six girls and three boys. The children included two nine year olds, one ten year old, one eleven year old, four twelve year olds, and one thirteen year old. All of the students were home schooled and attended the weekly co-op where the questionnaire was administered. Individual parental assistance was not given to any student during the administration of the questionnaire. The researcher administered the questionnaire and answered the students' questions relating to the questionnaire.

Figure 2 summarizes the results of the study for each student participant. The results are limited but still provide useful information about each student. Explanations follow the chart. The major terms assigned for student learning style include Gregorc's Concrete-Random, Concrete-Sequential, Abstract-Sequential, and Abstract-Random; Kolb's Accommodator, Converger, Assimilator, and Diverger; and Duffy's Wiggly Willy, Perfect Paula, Competent Carl, and Social Sue. Notice the abundance of students demonstrating Kinesthetic learning preference and Concrete Random learning style. The nine students are divided rather evenly between Analytical and Global information processing preference. Also, eight of the nine students consider themselves as extroverts.

Figure 2*Results of Questionnaire by Student*

Student	Learning Preference	Learning Style	Personality Type	Processing Information	Environmental Preferences
#1	Auditory	CR	E (rest unsure)	Analytical	2-6PM; snacks; natural light; anywhere; low background
#2	Kinesthetic	CR/AR	E Unsure T P	Global	2-6PM; snack; bright light; desk/table; low background
#3	Visual	CR/AR	E/I N T/F P	Analytical	2-6PM; snacks; dim light; anywhere; low background
#4	Kinesthetic	CR	E S T J	Analytical	10AM-2PM; no food/drink; dim light; floor/sofa; not distracted
#5	Visual	CR	I N F/J P	Global	6-10PM; no food/drink; natural light; anywhere; not distracted
#6	Kinesthetic	CR/AR	E S T P	Global	2-6PM; food/drink; natural light; floor/sofa; not distracted
#7	Kinesthetic	CR	E S T/F Unsure	Analytical	2-6PM; food/drink; dim light; desk/table; low background
#8	Kinesthetic	CS/CR	E N Unsure P	Global	6-10AM; snack; dim light; desk/table; distractible
#9	Kinesthetic	CR/AR	E N F P	Global	10AM-2PM; no food/drink; bright light; anywhere; distractible

Learning Preference

~**Auditory**: learn by listening to verbal instructions

~**Visual**: learn by seeing and watching; strong visual associations

~**Kinesthetic**: learn by becoming physically involved and doing something with what's being learned

Learning Style - Gregorc = Kolb = Duffy

~Concrete-Random/**CR**/Otter: Divergent, experiential, inventive = Beach Ball = **Accommodator**: Likes to try new ideas, values creativity, flexibility, risk takers = **Wiggly Willy**

~Concrete-Sequential/**CS**/Lion: Task oriented, efficient, detailed = Clipboard = **Converger**: Values what is useful and relevant, immediacy, organizing essential information = **Perfect Paula**

~Abstract-Sequential/**AS**/Beaver: Intellectual, analytical, theoretical = Microscope = **Assimilator**: Avid readers who seek to learn, patience for research, values concepts = **Competent Carl**

~Abstract-Random/**AR**/Golden Retriever: Imaginative, emotional, holistic = Puppy = **Diverger**: Values positive, attractive caring environments, comfortable, and people oriented = **Social Sue**

Personality Type:

~Extrovert/**E** or Introvert/**I**: How obtain information

~Sensing/**S** or Intuitive/**N**: How receive and make sense of information

~Thinking/**T** or Feeling/**F**: How conclude or judge information collected

~Judging/**J** or Perceiving/**P**: How direct energy

Processing Information

~**Global**: Big picture/Flexible

~**Analytical**: Details/Organized

Figure 3 demonstrates the similarities and differences in personality and learning style of the nine students involved in the study. Sometimes the answers were ambiguous. The twelve and older students provided the clearest answers overall, demonstrating that age plays a part in how children understands themselves as pointed out by Clarkson and Clarkson.

Figure 3

Study Results: Learning Preferences, Learning Style, Personality Type, Process Information

	Learning Preferences	Learning Style	Personality Type	Processing Information
By Gender: Female: 6 Male: 3	Auditory: F: 1 Visual: F: 2 Kinesthetic: F: 3; M: 3	Otter: F:2; M:2 Otter/GR: F: 4 Lion/Otter: M: 1	Extrovert: F: 5; M: 3 Introvert: F: 1 Sensing: F: 1; M: 2 Intuitive: F: 3; M: 1 Thinking: F: 2; M: 1 Feeling: F: 2 Judging: M: 1 Perceiving: F: 4; M: 1 (remainder in each set – unsure)	Global: F: 4; M: 1 Analytical: F: 2; M: 2
By Age (12 & 13) Age 12: 4 Age 13: 1	Auditory: 0 Visual: 1 Kinesthetic: 4	Otter: 2 Otter/GR: 2 Lion/Otter: 1	Extrovert: 4 Introvert: 1 Sensing: 2 Intuitive: 3 Thinking: 2 Feeling: 2 Judging: 0 Perceiving: 3 (remainder in each set – unsure)	Global: 4 Analytical: 1

The range of environmental preferences was interesting as demonstrated in Figure 4. The most popular time for alertness is from 2 to 6 PM. More students preferred a small snack for study time than no food or drink or unlimited food and drink. Low background music is preferred overall, but of the 12 and 13 year-olds only one preferred the low background noise.

Figure 4*Study Results: Environmental Preferences*

	Alertness	Food/Snacks	Lighting	Location	Noise Tolerance
By Gender	6-10AM: M: 1 10AM-2PM: F: 1; M: 1 2-6PM: F: 4; M: 2 6-10PM: F: 1	Sm. Snack: F: 3; M: 1 No Food/Drink: F: 2; M: 1 Food & Drink: F: 1; M: 1	Bright: F: 2 Dim: F: 1; M: 3 Natural: F: 3	Desk/Table: F: 1; M: 2 Floor/Sofa: F: 1; M: 1 Anywhere: F: 4	Distractible: F: 1; M: 1 Not Distracted: F: 2; M: 1 Low Background: F: 3; M: 1
By Age (12&13 only)	6-10AM: 1 10AM-2PM: 1 2-6PM: 2 6-10PM: 1	Sm. Snack: 1 No Food/Drink: 2 Food & Drink: 2	Bright: 1 Dim: 2 Natural: 2	Desk/Table: 2 Floor/Sofa: 1 Anywhere: 2	Distractible: 2 Not Distracted: 2 Low Background: 1

Barbe-Swasssing's Modalities:

Many people associate learning style with Barbe-Swasssing's Modalities of auditory, visual, and kinesthetic learners. The section of the questionnaire covering modalities included three statements with directions to check one of the three sentences that best described the individual and how he/she learns. One female student under the age of twelve responded as an auditory learner; two female students, one under the age of twelve, indicated they were visual learners; and the six other students, three females and all three males with one female and one male being under the age of twelve, indicated they were kinesthetic learners. All nine students clearly marked the one sentence that best described him/her and how he/she learned.

Gregorc's Mind-styles and Trent's personality:

For the personality/learning style Trent's animals allowed the students to identify which animal they thought represented his/her personality. In addition, a series of "yes/no" questions were asked to determine Gregorc's Mind Style. Responses showed all nine children related at least partially to Trent's otters (fun loving and energetic) and thereby related to Gregorc's Concrete Random (CR). Four pictured themselves as "Otter"

and “Golden Retriever” or Abstract Random (CR/AB). One student identified with “Lion” or Abstract Sequential and “Otter” (AS/CR). Gregorc’s Mind-styles was underrepresented within the questionnaire.

Wolf’s Self-inventory Personality Assessment:

Using Wolf’s Self-Inventory Personality Assessment, a simplistic chart was created allowing the students to “agree, unsure, or disagree” with eight descriptions. Personalities of the subjects included eight extroverts and one introvert, three sensing and four intuitive, three thinking and two feelings with, and one judging and six perceiving. Where the totals on personality type do not add up to nine, the remainder were unsure. Interestingly, eight of the nine students considered themselves as extroverts. Five of the students also consider themselves as perceivers. By combining the predominate trait from each set, an individual gains greater insight into their more complete personality. Myers-Briggs Type Indicator (MBTI) would provide a more in-depth personality type assessment through the website.

Dunn and Dunn’s Environmental Preferences:

Environmental preference questions were modified from Tobias’ “Getting to Know Your School-age Child” free survey from applest.com. The results of questions relating to environment demonstrate the varied preferences of the students involved in the study. The majority (five) of the nine students preferred working between 2 and 6 PM. One student preferred working between 6 and 10 AM, two preferred between 10 AM and 2 PM, while the other one preferred working between 6 and 10 PM. Relating to food while studying, four like small snacks, three like no food or drink, and two like food and/or drink. The answers to lighting preference included two preferring bright light, four prefer dim

light, and three prefer natural room light. Three students prefer working at a desk or table, two on the floor or a sofa, and four work anywhere. Two students are distracted from work by music or noise, three are not distracted by music or noise, and four are able to work with low background music or noise.

Gardner's Multiple Intelligences:

For the section covering multiple intelligences, each student was directed to place an X before all that applied. Five students checked verbal, five checked logical, six checked spatial, six checked musical, seven checked bodily/kinesthetic, five checked interpersonal, and four checked intrapersonal. One student left this section blank.

Witkin's Analytic/Global Information Processing:

The questionnaire included a section of ten questions in an effort to determine whether each student was a global or analytical processor of information. The questions were arranged in five sets of two questions. Of the nine students, five related more predominately to global learning skills and four related to analytical. Of the students twelve and over, four were global and one was analytical.

Other topics:

The student participants were also asked to identify their favorite school subject. Four cited math as their favorite school subject, history was the favorite of two students, one student cited astronomy, one cited gym, one cited English and Spanish and science, and two thought lunch was the best school subject. This question was included as a fun question.

Conclusions

In preparation for this study, parents have shown an interest in learning more about their child's personality and learning style. Discovering more about how the children think and their learning preferences has proven interesting and provided greater insight into how children learn and why some children struggle where other children excel. Aligning curriculum capable of addressing different learning styles and personalities has the possibility of benefiting both the teacher and the student. This paper intends to aid parents by providing curriculum ideas that address various learning styles and personalities.

Reviewing literature as part of the process and continual work on writing up the results has revealed interesting material relating to personality and learning style in relation to teachers, learners, curriculum, and effects on instruction. Studies generally look into effects of personality and learning style on students in a traditional classroom where teachers have limited opportunities and resources to meet the needs of each student. Endeavoring to meet the individual needs of students involves diversity in teaching methods and materials and Individualized Education Programs (IEP). This study focused on home school students. Home school families have the flexibility to cater their methods and curriculum for each child, if they so desire.

God has given each individual a personality. "A specific personality is there from the start that becomes more refined and defined with age" (Clarkson and Clarkson, 1996, p. 141). Personality and learning style may be influenced by exterior input. Extraneous effects on personality may include character training, biblical values, weaknesses, temptation, sin, spiritual gifts, life experiences, and masculine and feminine traits (Clarkson and Clarkson, p. 143). Tobias provides advice for parents regarding discovering learning

styles. Parents do well to observe patterns of behavior, listen to the way a child communicates, experiment with what works and what doesn't work, focus on natural strengths rather than weaknesses, and finally learn more about learning styles in general (p. 8-9). Fliess (2008) advises looking at learning weaknesses also in an effort to strengthen areas of challenge and thereby working with a child's strong abilities as well as weaker areas. When home school parents are aware of children's personality and learning style, curriculum can be geared to work with that personality and learning style for a stronger, more fulfilling education.

CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

Introduction

The initial purpose of this study was to determine methods beyond the achievement and aptitude tests to uncover pre-high school home school students' strengths and weaknesses. The intent was to guide each student through the high school years using their strengths and weaknesses toward fulfilling their God-given potential. Researching strengths and weaknesses led to studies on personality and learning styles. Personality and learning style provides a different perspective from testing to discover students' strengths and weaknesses by discovery how they learn and possible reasons for each individual's style of learning. This study focused on learning more about personality and learning styles and using this information to guide home school parents in curriculum choices. The questionnaire developed for the study provided information about each participant that allowed greater understanding of personality and learning style, which can in turn provide guidance to parents in curriculum decisions for their children.

Interpretations of the Results

The questionnaire provided information about each of the nine students relating to personality and learning style. God has created individuals with commonalities and differences that make each person like others – but unique. No two snowflakes are exactly alike, no two individuals have the same fingerprints, and no two people have the same personality or the same learning style. But as with the snowflakes and fingerprints, different individuals have similarities and instruments of evaluation, such as those developed by Myers-Briggs (MBTI), Tobias, Wolf, the Clarksons and others, are based on

those similarities. One visual learner will learn in a similar way to another visual, one auditory learner maintains a connection to another auditory learner, and kinesthetic learners demonstrate similar learning patterns. The similarities in individual personalities and learning styles provide a basis for assessing curriculum according to those similar traits as shown in Figure 5.

Figure 5

Curriculum Recommendations for Four Learning Styles

	Multisensory/Hands-on (Wiggly Willy); Concrete- Random; Accommodator	Structure/rule-oriented (Perfect Paula); Concrete- Sequential; Converger	Appeals to logical/ analytical learners (Competent Carl); Abstract-Sequential; Assimilator	Has social activity (Sociable Sue); Abstract-Random; Diverger
Phonics, Reading, Literature	Sing, Spell, Read, & Write	Learning Language Arts through Literature; Critical Thinking	Learning Language Arts through Literature; Spell to Read & Write	Sing, Spell, Read, & Write; Drawn into the Heart of Reading
Mathematics	Math-U-See; Discovering Geometry	Horizons Math; Saxon Math 54 & Up	Math-U-See; Elementary Algebra, Geometry (Jacobs)	Math-U-See; Progress in Mathematics
Grammar & Composition	Create-A-Story Game; Winston Grammar	Easy Grammar; Institute for Excellence in Writing	Institute for Excellence in Writing; Writing with a Point	Create-A-Story Game; Institute for Excellence in Writing
Spelling & Vocabulary	English from the Roots Up; Spelling Power	Vocabulary from Classical Roots; Spelling Power	Vocabulary from Classical Roots; Spelling Power	English from the Roots Up; Spelling Power
History/Social Studies	Ultimate Geography and Timeline Guide; Mystery of History	Mystery of History; The Story of the World with study guide	Ultimate Geography and Timeline Guide; The Story of the World with study guide	A Child's History of the World; Mystery of History; The Story of the World with study guide
Science	TOPS Science; Janice VanCleave Science Books	Considering God's Creation; TOPS Science	TOPS Science; Considering God's Creation	Considering God's Creation; A History of Science
Unit Studies	History Links; KONOS; Tapestry of Grace	Five in a Row; History Links	World Views of the Western World; Tapestry of Grace	History Links; Tapestry of Grace
Foreign Language	Rosetta Stone	Latina Christiana	Latina Christiana; Rosetta Stone	Rosetta Stone
Miscellaneous	Mark Kistler's Draw Squad; Feed My Sheep	The Potter's School; Switched-On Schoolhouse	Critical Thinking Company; The Fallacy Detective; The Potter's School	Feed My Sheep

Source: Cathy Duffy, *100 Top Picks for Homeschool Curriculum: Choosing the Right Curriculum and Approach for Your Child's Learning Style*, pages 72-79

Potential Applications of the Findings

Home school parents know a great deal about their children from teaching them, working with them with schoolwork, as well as everyday interaction. Through the study of personality and learning style, parents have further insight into their child's thinking and preferences. The understanding of learning style and personality can assist parents when making decisions for home schooling, such as the setting, timing, intensity, and even the curriculum to be used.

Duffy (1992) suggests steps for home school families for their journey into home schooling in her book *Christian Home Educators' Curriculum Manual Elementary Grades*. The first step is to set family goals to determine the why, how, and what of curriculum and instructional decisions (see Figure 6). The next two steps involve determining or gaining awareness of the learning style of the parents (see Figures 7) and the children (Figure 1, page 42).

Figure 6

Set Family Goals

Why? Basic Philosophy/Beliefs	What preparing children for? (To make lots of money; to serve God &/or others; to have fun in life; to pursue personal ambitions) Who owns our children? (The State, parents, God, no one) What is man's nature? (sinful, corrupted nature; basically good needing shaping)
How? Philosophy of Education	Traditional; lecture with memorization and drill; Classical; Charlotte Mason; discovery/experiential; child-centered unschooling; child-centered parent-led; individualized
What? Methods & Materials to use	What methods & materials needed to fulfill goals and meet expectations set by basic philosophy and educational philosophy: Consider age of children and how many schooling at home; informal learning; complete curriculum package; eclectic combination of curriculum; computer or DVD schooling; self-directed

Source: Cathy Duffy, *Christian Home Educators' Curriculum Manual Elementary Grades*

Figure 7*Determine Learning Style of Parent/Teacher*

Type A: Actual Spontaneous	Fun loving; impulsive; creative & efficient solutions to tasks; activity over reading books; prefers teaching fine arts, physical education, and activity-oriented classes
Type B: Actual Routine	Planner; follow schedules; memorization and drill work; easily upset when children don't cooperate; focus on meeting requirements; prefers umbrella program for home educators; prefers pre-planned curricula; prefers teaching "cut and dry" subjects
Type C: Conceptual Specific	Likes to be in control; logical thinking and acting; understanding of reasoning and logic of ideas; good organizer; work alone/independent; impatient with those disorganized and slow to grasp; uncomfortable in social settings; less sensitive to others' feelings & emotions; makes long-term plans; usually organized; prefers teaching math, science & other logic-related subjects
Type D: Conceptual Global	Enjoys social interaction; likes to belong to groups; concerned with what others think; insecure about abilities in home education teaching; idealistic with expectations & goals; may or may not be organized; focus more on general concepts than details; prefers teaching language arts, social studies, & possibly fine arts

Source: Cathy Duffy, *Christian Home Educators' Curriculum Manual Elementary Grades*

As parents work their way through the steps for making curriculum decisions, they gain a greater grasp of who they are as a teacher through the process of determining their own personality and learning style and that of their children. With this knowledge, parents strengthen the relationship with each child by gaining understanding and applying that understanding in the home school experience.

Along with evaluating learning style, parents benefit from evaluating personality type. The questions presented by Wolf (2009) are included in the questionnaire as well as in Figure 8. Parents can also use these questions for themselves or go to the Myers Briggs website for a more detailed analysis.

Figure 8*Personality Type of Parent/Teacher and Student*

Personality Assessment	Agree	Unsure	Disagree
Extraversion (E): I describe myself as an extrovert (I prefer to be around people; I don't mind large crowds; I am outer-directed)			
Introversion (I): I describe myself as an introvert (I prefer to be alone; I am quiet and inner-directed)			
Sensing (S): I prefer to process information through the use of my five senses; I am detail oriented; I like facts and figures.			
Intuition (N): I prefer to process information through my intuition; I look for the big picture; I am an "ideas" person.			
Thinking (T): I prefer to make decisions based on logic and rational thinking; justice and fairness are important to me.			
Feeling (F): I prefer to make decisions based on my feelings and how decisions will affect people.			
Judging (J): I prefer to plan activities ahead of time; I am decisive and I like to finish projects that I start.			
Perceiving (P): I prefer to be spontaneous; I am flexible and don't always finish tasks but I like to start many projects.			

Source: Karen Wolf, *CliffsNotes Roadmap to College: Navigating Your Way to College Admission Success*

Evaluating personality and learning style is not meant to divide individuals into pigeonholed groups. The information gained allows parents to better understand similarities in personality and learning style and therefore use each child's strengths in the education process while encouraging children in their weak areas to become fuller, more well-developed individuals. This understanding of personality and learning style may also be used to guide curriculum and instructional decisions.

For those home school families preparing for the high school years, curriculum choices may be driven or influenced by what will happen following high school graduation.

Students have options. Consider the options of a two-year or four-year college, university, or community college. Other options include vocational or technical schools, apprenticeships, military, or employment. Families should consider pursuing curriculum leading to college level work even if the student does not seem interested at the time. Retreating from the college level work is easier than pushing to fulfill the required college level work toward the end of the high school years.

The curriculum decision process then looks at state academic standards, not necessarily as a requirement to fulfill, but as a guideline for providing an equivalent education to children. State standards can be accessed through the state department of education directly or for home school families through Home School Legal Defense Association (HSLDA) at their website. HSLDA provides a multitude of resources and encouragement for home school families. States do have requirements for home school families. Families must be aware of and address the state requirements for their state.

The steps for making curriculum decisions given in this paper include setting family goals, determining learning style of the parent or teacher, determining the learning style of the student, evaluating personality type of the parent or teacher and the student, discussing post-high school options, determining state standards, and lastly comparing and choosing curriculum with personality and learning style as a guide (see Appendix D). Achievement and aptitude test results contribute to knowing the strengths and weaknesses of students, while personality and learning style offer a better understanding of the reasons for those strengths and weakness and how to more effectively address the education experience of each child.

The study participants all included at least partial CR (Gregorc) or "Wiggly Willy" (Duffy) as learning style. According to Duffy (2005) in her book *100 Top Picks for Homeschool Curriculum*, Wiggly Willy's prefer hands on activities, project learning, learning games, multisensory audio-visual aids, movement, and variety in learning method (p. 48). Four of the nine included "Social Sue" and prefer real books, unit studies, creative writing, social learning situations, and variety in types of resources (p. 51). The lone "Perfect Paula" prefers workbooks, consistency, rules and predictability, repetition and memorization, and gentle help to develop creativity and deeper thinking skills (p. 49). Again, according to Duffy, these nine students might do well with curriculum such as Greenleaf Guides for Greece and Rome and Story of the World (history); Stratton House Home Science Adventures' Astronomy, Birds, and Magnetism; Modern Curriculum Press (MCP) Comprehension Plus (comprehension and vocabulary); Easy Grammar; Creative Communications (writing activities); MCP Spelling Workout; and Math-U-See. Chapter Six of Duffy's book includes a good chart as guidance to decide what curricula for general subjects might work for the different learning styles and teaching methods (p. 66-79).

How learning style can influence curriculum choices? The student example from the study is male and age twelve. He is Concrete Random (CR), Kinesthetic, and Analytical. As a CR, or "Wiggly Willy" applying Duffy's terms, he demonstrates energy, curiosity, and ideas. He may work well with general time frames rather than specific deadlines. Real-life experiences would help him learn. An overly structured program may well prove frustrating to him. As a kinesthetic learner, he likes movement and has a hard time sitting still for long periods of time. Learning involving action will allow what is being learned to stick better. Pacing or just moving while memorizing or reading is helpful. As an analytical

learner, he focuses on details and breaking down information into the component parts. He remembers specific details and does well with doing one thing at a time. Putting assignments in step-by-step order may well help him complete assigned tasks. He analytically interacts with information as he learns, meaning he listens for the details rather than the overall concept or theme. The above descriptions are gleaned from Tobias' *the way they learn: How to discover and teach to your child's strengths*. Below is a list of possible curriculum choices for this CR, Kinesthetic, Analytical student based on Duffy's (2005) recommendations in *100 Top Picks for Homeschool Curriculum* and her website. Some of the recommendations require more parent/teacher involvement than other curriculum, but Duffy's book includes a chart that will help narrow the search for a well fitting curriculum for each subject and family.

Reading: Drawn into the Heart of Reading; Heart of Dakota Publishing

www.heartofdakota.com/index.php

Mathematics: Math-U-See www.mathusee.com/ or Progress in Mathematics

(Fundamentals of Algebra) www.sadlier-oxford.com/math/student.cfm

Grammar: Winston Grammar www.winstongrammar.com/

Writing: Igniting Your Writing II (recommended by Drawn into the Heart of Reading)

Spelling: Spelling Power www.spellingpower.com/

Vocabulary: English from the Roots Up www.literacyunlimited.com

History: Mystery of History www.themysteryofhistory.info/ or The Story of the World with study guide <http://peacehillpress.com/history-and-geography/story-of-the-world.html>

Science: AIMS Education Foundation www.aimsedu.org/ or Great Science Adventures

<http://commonsensepress.com/greatscience/default.htm> or TOPS Science

www.topscience.org/

For **Unit studies**: History Links www.historylinks.info/ or Tapestry of Grace

www.tapestryofgrace.com/inde.php Unit studies generally include a range of subjects. For instance, Tapestry of Grace includes the study of literature, history, geography, writing, and art and craft ideas all tied together with the general unit or time period under study.

Foreign Languages: Learnables www.learnables.com/ or Rosetta Stone

www.rosettastone.com/

Art: Mark Kistler's Draw Squad www.draw3d.com/ or Feed My Sheep/How Great Thou

ART www.howgreathouart.com/

Biblical Integrative Component and Implications

God created mankind as unique individuals. In Psalm 139: 13-16 David discusses God's intricate workings in creating each individual. Verse 14 says, "I will praise thee; for I am fearfully and wonderfully made: marvelous are thy works; and that my soul knoweth right well." Solomon, the king of Israel and son of David, spoke of receiving "the instruction of wisdom, justice, and judgment, and equity" (Proverbs 1:3). Later in Proverbs parents are instructed to "Train up a child in the way he should go: and when he is old, he will not depart from it" (Proverbs 22:6). Paul in the New Testament says, "Fathers, provoke not your children to wrath: but bring them up in the nurture and admonition of the Lord" (Ephesians 6:4). In Deuteronomy Israel was told to "Love the LORD thy God with all thine heart, and with all thy soul, and with all thy might" (Deut. 6:5). Verse seven of the same

chapter says, “Thou shalt teach them diligently unto thy children.” The Psalmist relates children to arrows saying, “Children are an heritage of the LORD: and the fruit of the womb is his reward. As arrows are in the hand of a mighty man; so are children of the youth. Happy is the man that hath his quiver full of them” (Psalm 127:3-5). God has blessed families with precious “arrows” that need training. Children are made in the image of God.

Christians look toward hearing, “Well done, thou good and faithful servant” (Matthew 25:21, 23) through fulfillment of the biblical mandates of stewardship, reconciliation, and living as image bearers of God. Stewardship teaches believers to appreciate and apply God-given talents, abilities, and potential to be used as instruments in God’s hands. Reconciliation involves training in the proper handling of relationships with God, man, and each other. As godly image bearers, believers grow to be more like Christ in their daily walk allowing others to catch a glimpse of what God is like. Faithful servant/parents train others to be faithful servants—especially their children.

Parents home school their children for various reasons (Gaither, 2009). Seeking to provide a Christian education that infiltrates each child’s life requires knowing the child as well as possible. God designed each individual with a particular personality and learning style, but he also revealed similarities that can be evaluated and incorporated into the education experience. The study of personality and learning style also helps us “know more about the infinitely creative God who made us” (Clarkson and Clarkson, 1996, p. 142). Making use of personality and learning style evaluations gives greater understanding of the bends and characteristics of the parent and the child. These evaluations become tools in the hands of the parents to develop strong “arrows” with sharp academic training and a delicate guidance system (Harris, 1988). For the Christian family, education involves the

entire life of children, training and encouraging them to seek and follow God's design through a biblically prepared reason that responds to God.

Duffy (1992) begins her book by stating the importance of setting "concrete goals" through examining the basic philosophy of the family. Once the goals are set, the methods and materials must line up with those goals (p. 1). Similar to the method and strategy discussion within churches that desire to positively influence the world for Christ, Christian parents must also bear in mind their strategy for home schooling. The effective method and materials are driven by the goal or strategy to be used. Frank Tillapaugh in his work, *Unleashing the Church: Getting People out of the Fortress and into Ministry* (1982), stresses "the need for a sound strategy to precede the methods applied." He argues that "methods are neither the problem nor the solution, but it is rather the strategy (or lack of it), that defines what is (or is not) to be accomplished" (as cited in Cook, 1993, p. 19). God is a God of order, imagination, beauty, and love. "Let all things be done decently and in order" (I Corinthians 14:40). The goals of the family drive an orderly decision making process for the home education experience. Duffy (2000) recommends parents need to, "design our home school program in a way that suits each person's learning style, using methods and materials best for each" (p. 19). To be aware of personality and learning style opens the door to clearer direction in the evaluation of curriculum and instructional options and allows greater opportunity to encourage children's pursuit of God's plan for their life.

Relation of the Results to Theory and Other Literature

Do personality and learning style relate to the education and learning process?

Personality and learning style provide viable input for the curriculum and instructional decision process. Home schooling provides the opportunity to teach one-on-one. "Survey research has revealed a heterogeneous population of home schoolers and higher rates of minority home schooling than expected" (Gaither, 2009, p. 12). Gaither further points out that according to a 1999 study by Karen Rogers Holinga, home school families are less likely to use a prefabricated curriculum. Instead, families pull curriculum from "a more flexible, eclectic orientation" (p. 15) requiring more sifting of curriculum than in years past. Children's personality affects their learning through the way they gathers information, organizes information, and makes decisions with that information. Home schooling parents can maximize teaching efforts by understanding each child's learning style.

The results of this study demonstrate the diversity of personality and learning style in children. When home schooling experienced a renaissance during the 1960s and 1970s, curriculum resources were limited for home schooling families. Prefabricated, complete curriculums used in Christian schools often became the materials for many families seeking to educate their children at home, or the unschooling practice with no formal curriculum and parents acting as facilitators allowing the children freedom to learn what they desired (Gaither, 2009, p. 15). Curriculum choices today are plentiful for home schooling families. Therein lies the reasoning for a more streamlined guide for selecting the appropriate and useful curriculum. Personality and learning style evaluations provide another tool for making these crucial decisions.

Chickering (2006) states in his article, "The critical point is to help students become more reflective and thoughtful about how they learn best" (p. 12). Chickering's article addresses issues in the ranks of higher education. Wolf (2009) encourages students to

assess their personalities, talents and abilities during the high school years and notes that some high schools require the self-assessment to be completed prior to meeting with the guidance counselor. According to Golden (2003), self-efficacy as defined by Bandura in Goddard and Goddard (2001) is “beliefs in one’s capabilities to organize and execute the courses of action required to produce to given attainments” (p. 14). Golden further states, “heightened levels of self-efficacy, high self-esteem, and high self-confidence are key to the academic success of GED (General Educational Development) students in college” (p. 16). Awareness of one’s personality and learning style allows for greater understanding of oneself. Parents that evaluate their children’s personality and learning style in preparation for high school provide them additional tools in preparation for college.

Knowing oneself produces greater confidence and therefore ability to learn how to deal with strengths and weaknesses as well as relate to others with differing personality and learning styles. Martin and Potter (1998) acknowledge, “The more a child understands about her/himself, the greater self-esteem and confidence s/he will have” (p. 549). They encourage a program including steps teachers can take to work with parents toward a better education for the students by understanding learning style and implementing a plan for studying at home. By knowing a student’s weaknesses, instruction can also be geared to strengthen the weak areas according to Fliess (2008). In his article, *The Thoughtful Classroom*, Silver (2009) highlights five principles of the thoughtful classroom, including the idea that “thought is personal and a matter of style” (p. 5). Again the evidence points to the benefit of evaluating personality and learning style. Home school families have the capabilities to evaluate their children in these areas.

Strengths-based education focuses on determining student strengths through measuring 34 talent themes. The general idea is to discover and “emphasize the positive aspects of student effort and achievement, as well as human strengths” (Lopez and Louis, 2009, p. 1). The five principles of Strengths-based education include measurement of student characteristics, individualized learning experiences, networking providing praise and recognition, deliberate application fostering positive outcomes, and intentional development for focused practice of strengths through growth opportunities. According to Anderson (2005), the generally accepted approach to education involved “deficit-based remediation,” but this programming “actually prevented students from becoming top achievers” (p. 183). The talent focus relies on uncovering student’s (and educator’s) “naturally recurring pattern of thought, feeling, or behavior” which then allows the individual to repeatedly achieve goals. “The strengths quest – or quest for strengths – begins as students look within themselves to recognize their own natural talents” (p. 188) and then use those talents or strengths to achieve higher goals. Home school parents may benefit from searching the 34 StrengthsFinder™ themes at their website for more information on strengths and talents—a slightly different slant on personality and learning style.

Educators have different personalities. According to Baumann (2007), “certain aspects of effective teaching can be found in each of the 16 possible personality types” (p. 10) demonstrated by the Myers-Briggs personality test. Baumann includes Paul, James, and Peter as scriptural examples of effective teachers with different personality types. The common behaviors expressed by Baumann include organization, “withitness,” and caring. Even as teachers include a variety of personality types, so do students. Home school

parents, with a wide range of personality type, are more effective teachers through their behavior and understanding of their children's personality and learning style.

In the article, "Planning to Unmask Potential Through Responsive Curriculum: The 'Famous Five' Exercise," Jane M. Jarvis (2007), discusses the use of curriculum to identify gifted students. The Famous Five Exercise involves first identifying "five eminent individuals (past or present) who have contributed significantly to a field related to the discipline for which the curriculum has been developed" (p. 237). The process continues with constructing a narrative or list of the chosen individual's "strengths, characteristics, and needs" relating to the age of the prospective students. Finally, educators evaluate the developed curriculum for challenge, strength, interest, support, and modifications needed. "Curriculum that lacks quality and is not matched to the needs and strengths of individual learners can act as a barrier to identification (of gifted learners) for those not currently displaying advanced levels of academic performance" (p. 240). Maybe the identification of gifted students would be aided by first identifying the student through personality and learning style evaluations and then work within the Famous Five Exercise to determine the challenging, interesting curriculum for the gifted child.

Should personality and learning style have an input on what curriculum should be used for home schooled students? "Science has not (yet) demonstrated that designing learning/training for those styles makes a difference in learning" (Wallace, 2011). Wallace acknowledges that people have learning style preferences. For the home educated students, instruction is generally received on a one-to-one basis. As parents learn more about their children, they are able to apply the knowledge of personality and learning style to teach each child more effectively. Once the personality and learning style is established,

curriculum decisions can be more accurately adapted relating to the personality and learning style of the child.

Strengths of the Study

As noted by Wallace (2011), learning style preferences do exist. Clarkson and Clarkson explain that a “specific personality is there from the start that becomes more refined and defined with age” (p. 141). Personality can be evaluated and used as a tool for greater understanding of each child. Clarkson and Clarkson state that personality is often referred to as “learning styles” (p. 141). Though the study of personality is subjective and observational, similarities exist and are observable. Home school parents who desire to provide a good education to their children want to learn as much about each child as possible. Students benefit and gain self-confidence as they learn about themselves and how they learn. Personality and learning style provide avenues to address strengths and weaknesses in children, allowing for new and review material to be more solidly learned by the child. Also recognizing personality and learning style enlightens students to the strengths and weaknesses of others, providing avenues to help others who may be struggling with learning.

For the Christian family, education provides the opportunity to learn about and develop children, and creation, for the glory of God. Children can be trained as ministers of reconciliation affecting today’s culture. Reconciliation includes training in the proper handling of relationships with God, nature, man, and each other. God created each individual in his image. Each unique individual gains worth from the Creator. God has given each person individual, unique fingerprints and personality. Christian individuals

demonstrate God's grace to others, represent Christ to the world, and seek to be more like Christ in their life. Education for the believer does not deify reason but prepares reason to respond to God through biblical stewardship and reconciliation. Harris (1988) described children as arrows. Parents train academically sharp children with a gentle guidance system through God's truth.

The goal of this study involved discovering personality and learning style of home schooled children to provide additional tools for home schooling parents in the curriculum decision process. The method employed to gather data involved home school students completing a questionnaire. Through various sources the self-reporting questionnaire for this study was developed to discover students' personality, learning style, and learning preferences through questions or descriptions broken into eight sections. As a warm up question, the participants were to choose an animal (a lion, otter, golden retriever, or beaver each of which included brief descriptions) that best described their personality. The remaining questions or items included choosing the best description or representation of regarding personality and learning style, learning preferences, comparative words about personality, and checking applicable descriptions of intelligences. Titles and simple, clear directions introduced each new section. The sections included short, understandable, and appropriate questions that matched the research objective. Definitions or descriptions were included where misunderstanding might occur. Vertical responses added to the clarity of the options. One section included a matrix formatting for answers. The questionnaire included no loaded, leading, or double-barreled items. All but one question involved close-ended items. The four-page questionnaire appropriately involved the students. The questionnaire ended with a note of thanks for the students' participation.

Each child completed the questionnaire with minimal assistance from the researcher.

Overall, the students easily completed the questionnaire within 15 minutes.

Student addresses were added to the questionnaire to facilitate sending a packet of research information to the parents for their use. The parent packet includes their child's original questionnaire, summary information on their child only, a copy of curriculum decision making guidelines, and a brief listing of curriculum that matches or favors the different personality/learning styles. As the parents look through the information, the desire is for them to gain greater understanding of their children and provide additional tools in their search for curriculum that meets the needs of the family and the children. The high school years are especially important as an avenue to providing the best education for children encouraging them on the pathway to fulfilling their potential and God's purpose for their life.

Limitations of the Study

The participating group of students was small, nine children, but still demonstrated variety of personality, learning style, and learning preferences in their answers. They also represented mainly Christian home school families and were all from southwestern Ohio. The questionnaire was completed between 8 and 8:30 AM, except for two of the participants who completed the questionnaire later in the morning. As demonstrated by the data, this may not have been the most alert time for some of the participants. The age range of students was also a limiting factor. As Clarkson and Clarkson (1996) point out, younger children may not know themselves well enough to clearly address their personality, since they continue to develop personality into the adolescent years.

Returning to each student with follow-up questions or digging deeper could also add more value and clarity to the data.

While completing the questionnaire, a few students involved asked questions related to the meaning of certain words and how to best respond within certain sections. The Personality and Understanding Information sections proved to be the weakest sections of the questionnaire. The students struggled to find the best of the two-word pair personality words that described them, and the Understanding Information section was poorly laid out for clarity of answers for this age group. Some students were unsure how to best answer since they did not see themselves as “either/or” but sometimes one and sometimes the other. Ideas were presented briefly and openly for all participants to hear. One student did not complete one page of the questionnaire. Though the pages were numbered, the questions were not numbered. The questionnaire included multiple items to determine various qualities, but lack of clarity limited the use of those items to measure similar qualities. Also, the Describing Yourself section used only three responses and would have been clearer with four or even five response options as described in Johnson and Christensen’s (2008) work on pages 185 and 186. The pilot study included an even smaller group and feedback was sought at the end rather than during or even asking for more specific input into questions. Strengthening the questionnaire would strengthen and clarify the data.

The small group sampling does not provide strong effect size. Interestingly, six of the nine students described themselves as kinesthetic learners, with two visual learners, and only one auditory learner. The kinesthetic learners included all three boys and three of the six girls. Also eight of the nine students maintained they are extroverts. The extroverts

also included all three boys and five of the females. The responses to Processing Information indicated the students included five global processors, including one male and four females, compared to four analytical processors, including the remaining two males and two females. A larger sample aged 12 through 15 with more variety of home school settings should produce greater differences within the male and female variables. The Study Questionnaire Results Summary, Appendix C, provides further findings through comparison of the collected data.

Suggestions for Future Research

According to Davis (2010), “Personality is a blend of numerous factors including inborn neurological preferences, environment, culture, opportunity, family and experience” (p. 23). Clarkson and Clarkson (1996) discuss the study of personality and indicate the way one thinks is a good place to begin—“that is, how you gather information, organize it, and make decisions with it” (p. 144). Since all of the students in this research were home schooled, the study could be conducted across the public, private, and home schooled arenas. Differences in personality and learning style might be evident between those learning in the traditional classroom setting as opposed to those in the home school setting. Differences also might be seen between public and private schooled children. Family culture and economic standing provides differences in personality and learning style, also.

In his work on *The Thoughtful Classroom*, Silver (2009) comments, “While traditional test questions were designed to test students’ mastery of the content, newer test questions require students to know more than just the content. In order to succeed on today’s state assessment tests, students need to possess a wide variety of skills” (p. 40). The needed

skills include reading and study skills, thinking skills, communication skills, and reflective skills. Silver also demonstrates the importance of awareness and use of learning style within a classroom through the results of a study conducted by Robert Sternberg and associates.

- When students were taught using an approach that “matched” their own learning style preference, they outperformed students who experienced a teaching style/learning style mismatch.
- When students were taught using a variety of instructional approaches (vs. one single approach), they outperformed other students on performance-based assessments and on multiple-choice memory tests (p. 36).

Continued research and implementation of the findings would benefit not only home school families in curriculum decisions, but also other school settings that desire to provide a solid education for all students.

Further research could also evaluate curriculum currently in use by home schooling families and programs to determine which and how different personality and learning styles are addressed. By looking into current curriculum through the eyes of personality and learning style, parents would be able to narrow the curriculum search in this way also. The benefit would be for home school parents and students.

As young people, and adults, learn about their own personality and learning style they gain insight to help themselves learn and to reach out to help others. By learning about multiple personality and learning styles, students are better prepared for college and life. An individual's potential broadens as understanding of others influences lives.

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Appendix A - The Questionnaire**The Animal in YOU:**

Which animal is most like your personality?

- ☐ lion (take -charge)
- ☐ otter (fun-loving and energetic)
- ☐ golden retriever (sensitive and caring)
- ☐ beaver (organized, detail oriented)

Environment:

Place an X in the box that best describes you.

I am most alert

- ☐ Morning (6-10 AM)
- ☐ Mid-day (10 AM-2 PM)
- ☐ Afternoon (2-6 PM)
- ☐ Evening (6-10 PM)

While completing schoolwork I like

- ☐ Food and/or drink
- ☐ Small snack

- ☐ No Food or drink

I concentrate best with

- ☐ Bright light
- ☐ Natural room light
- ☐ Dim light

I study best

- ☐ At a desk or table

- ☐ On the floor or on a sofa
- ☐ Most anywhere

While I study, I am

- ☐ Not distracted by music or noise
- ☐ Able to work with low background music or noise
- ☐ Distracted from study by music or noise

Personality:

Circle the word in each pair that best describes you.

Quiet ~~~~~~ Outgoing

Easily distracted ~~~~~~ Focused

Self-discipline ~~~~~~ Go with the flow

Solemn ~~~~~~ Fun-loving

Moody ~~~~~~ Cheerful

Idealistic ~~~~~~ Practical

Energetic ~~~~~~ Laid back

Leader ~~~~~~ Follower

Organized ~~~~~~ Disorganized

Learning Style:

Place an X in front of the ONE sentence that best describes you and how you like to learn.

_____ I like to repeat words aloud and drill verbally or learn through songs or rhyme.

_____ Pictures or sketches help me remember information.

_____ Sitting still is hard for me. I like to move around and take frequent breaks.

Processing information:

Place an X in the box that best describes you.

I understand the main idea through the overall picture.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I remember specific details and can often repeat things word for word.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I read quickly, skipping unfamiliar words.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I read slowly and deliberately, reading every word and stopping to understand unfamiliar words.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I tend to choose stories for entertainment.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I choose stories that further my knowledge.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I prefer my work in piles, rather than files, and spread out over several areas.

- ☐ Almost always
☐ Sometimes
☐ Almost never

A structured schedule helps me complete work in a timely manner. A clear, efficient workspace helps me work.

- ☐ Almost always
☐ Sometimes
☐ Almost never

I tend to procrastinate (put things off till later).

- ☐ Almost always
☐ Sometimes
☐ Almost never

I break larger projects into smaller, more manageable parts.

- ☐ Almost always
☐ Sometimes
☐ Almost never

Understanding information:

*Place an X under **Yes** or **No** for each question.*

Yes | **No**

Do you like to investigate to gain knowledge? ~~~~~

Do you like to try new ideas? ~~~~

Are you creative? ~~~~~

Are you flexible? ~~~~~

Do you organize according to most important information? ~~~

Do you read a lot to learn? ~~~~~

Are you sympathetic to others' needs? ~~~~~

Describing yourself:

Put a check in one of the three boxes for each statement.

I describe myself as an extrovert (I prefer to be around people; I don't mind large crowds; I am outer-directed) ~~~~~~

I describe myself as an introvert (I prefer to be alone; I am quiet and inner-directed) ~~~~~~

I prefer to process information through the use of my five senses; I am detail oriented; I like facts and figures ~~~~~~

I prefer to process information through my intuition; I look for the big picture; I am an "ideas" person ~~~~~~

I prefer to make decisions based on logic and rational thinking; justice and fairness are important to me ~~~~~~

I prefer to make decisions based on my feelings and how decisions will affect people ~~~~~~

I prefer to plan activities ahead of time; I am decisive and I like to finish projects that I start ~~~~~~

I prefer to be spontaneous; I am flexible and don't always finish tasks, but I like to start many projects ~~~~~~

Agree	Unsure	Disagree

What is your favorite school subject?

Brainpower:

Place an X before ALL that apply to you.

___ Verbal or Linguistic: good writer, reader, speaker, and debater

___ Logical or Mathematical: good with numbers, patterns, logical reasoning

___ Spatial: good with mental pictures, re-creating a given image or situation

___ Musical: enjoy natural rhythm and melody

___ Bodily Kinesthetic: enjoy bodily movement or physical activity

___ Interpersonal: understand, appreciate, and get along well with others

___ Intrapersonal: understand yourself; enjoy reflection, meditation, and time alone

Please provide your name and age:

Thank you for taking time to answer these questions.

Research conducted by Sarah Cook through Cedarville University.

Sources used:

C. & S. Clarkson, *Educating the Whole Hearted Child*

C. U. Tobias, <http://applest.com>, and *the way they learn: How to discover and teach to your child's strengths*

J. Trent, "Your House, Animal Kingdom"

K. Wolf, *CliffNotes Road Map to College: Navigating Your Way to College Admission Success*

Appendix B – Parental Permission Form

I give my permission for _____, my son/daughter (age _____)

to participate in the research study being conducted by Sarah Cook through Cedarville

University. I understand that this research will provide information pertaining to my

child's personality type and learning style. I have reviewed the questionnaire to be used. I

do not expect any harm, physically or emotionally, for my child as a result of his/her

participation in this study. I further understand that I will receive the results of the

questionnaire for my child only, and that the information will not be shared with others

except as needed to complete the research.

Parent signature _____

Date signed _____

Student's signature _____

Appendix C - Study Questionnaire Results Summary

Student Information	M/F	Learning Preference	Learning Style	Personality Type	Environment Preferences	Multiple Intelligences	Information Processing	Favorite Subject
		Auditory/listen Visual/see and watch Kinesthetic/physical or do	Otter/Concrete Random Lion/Concrete Sequential Beaver/Abstract Sequential Golden Retriever/Abstract Random	Extrovert/Introvert Sensing/Intuitive Thinking/Feeling Judging/Perceiving	Alertness Food/Snacks Lighting Location Noise Tolerance	Verbal/Linguistic Logical/Mathematical Spatial Musical Bodily/Kinesthetic Interpersonal Intrapersonal	Global: big picture/flexible Analytical: details/organized	
#1 Age:9 -Auditory -Otter/Concrete Random -Analytical -E???	F	A	Otter	Extrovert Unsure on rest	2-6PM Small snack Natural room Anywhere Low background	V L ~ M B I ~	A	Math
#2 Age: 9 -Kinesthetic -Otter/Concrete Random & Golden Retriever/Abstract Random -Global -E?TP	F	K	Otter/Golden Retriever	Extrovert Unsure Thinking Perceiving	2-6PM Small snack Bright light Desk or Table Low background	~ ~ S M B ~ I	G	History
#3 Age: 10 -Visual -Otter/Concrete Random & Golden Retriever/Abstract Random -Analytical -E/IIT/FP	F	V	Otter/Golden Retriever	Extrovert- Introvert Intuitive Thinking-Feeling Perceiving	2-6PM Small snack Dim light Anywhere Low background	V L ~ M B I I	A	Astronomy
#4 Age: 11 -Kinesthetic -Otter/Concrete Random -Global/Abstract -ESTJ	M	K	Otter	Extrovert Sensing Thinking Judging	10AM-2PM No food/drink Dim light Floor or sofa Not distracted	~ L S M B ~ I	A	Math

Student Information	M/F	Learning Preference	Learning Style	Personality Type	Environment Preferences	Multiple Intelligences	Processing Information	Favorite Subject
#5 Age: 12 -Visual -Otter/Concrete Random -Global -IIFJ/P	F	V	Otter	Introvert Intuitive Feeling- Judging- Perceiving	6-10PM No food/drink Natural room Anywhere Not distracted	~ L S M B ~ I	G	Gym
#6 Age: 12 -Kinesthetic -Otter/Concrete Random & Golden Retriever/Abstract Random -Global/Abstract -ESTP	F	K	Otter/Golden Retriever	Extrovert Sensing Thinking Perceiving	2-6PM Food & Drink Natural room Floor or sofa Not distracted	V L S M ~ I ~	G	Science, Math, English, Spanish
#7 Age: 12 -Kinesthetic -Otter/Concrete Random -Analytical -EST/F?	M	K	Otter	Extrovert Sensing Thinking-Feeling Unsure	2-6PM Food & Drink Dim light Desk or table Low background	V ~ S ~ B I ~	A	Lunch
#8 Age: 12 -Kinesthetic -Lion/Concrete Sequential & Otter/Concrete Random -Global -EI?P	M	K	Lion/Otter	Extrovert Intuitive Unsure Perceiving	6-10AM Small snack Dim light Desk or table Distracted	No answers given	G	History, Lunch
#9 Age: 13 -Kinesthetic -Otter/Concrete Random & Golden Retriever/Abstract Random -Global -EIFP	F	K	Otter/Golden Retriever	Extrovert Intuitive Feeling Perceiving	10AM-2PM No food or drink Bright light Anywhere Distracted	V ~ S ~ B I ~	G	Math
TOTALS				(9 by pair)		(9 each area)		(9 per subject)
Ages: 9: 2 10: 1 11: 1 12: 4 13: 1	F: 6 M: 3	Auditory: 1 Visual: 2 Kinesthetic: 6	Otters: 4 Otter/Golden Retriever: 4 Lion/Otter: 1	Extrovert: 8 Introvert: 1 Sensing: 3 Intuitive: 4 (2 unsure) Thinking: 3 Feeling: 2 (4 unsure) Judging: 1 Perceiving: 5 (3 unsure)	6-10AM: 1 10AM-2PM: 2 2-6PM: 5 6-10PM: 1 Small Snack: 4 No food or drink: 3 Food & Drink: 2 Bright Light: 2 Dim Light: 4 Natural Light: 3 Desk or Table: 3 Floor or Sofa: 2 Anywhere: 4 Distracted: 2 Not Distracted: 3 Low Background: 4	Verbal: 5 Logical: 5 Spatial: 6 Musical: 6 Bodily: 7 Interpersonal: 5 Intrapersonal: 4	Global: 5 Analytical: 4	Math: 4 History: 2 Astronomy: 1 Science: 1 Gym: 1 Lunch: 2 English & Spanish: 1

Student Information	M/F	Learning Preference	Learning Style	Personality Type	Environment Preferences	Multiple Intelligences	Processing Information	Favorite Subject
Data by Gender:								
Age 9: F: 2 Age 10: F: 1 Age 11: M: 1 Age 12: F: 2; M: 2 Age 13: F: 1		Auditory: F: 1 Visual: F: 2 Kinesthetic: F: 3; M: 3	Otter: F:2; M:2 Otter/GR: F:4 Lion/Otter:M:1	Extrovert: F: 5; M: 3 Introvert: F: 1 Sensing: F: 1; M: 2 Intuitive: F: 3; M: 1 Thinking: F: 2; M: 1 Feeling: F: 2 Judging: M: 1 Perceiving: F: 4; M:1 (remainder in each set – unsure) ~~~~~	6-10AM: M: 1 10AM-2PM: F: 1; M: 1 2-6PM: F: 4; M: 1 6-10PM: F: 1 Small Snack: F: 3; M: 1 No F or D: F: 2; M: 1 Food & D: F: 1; M: 1 Bright Light: F: 2 Dim Light: F: 1; M: 3 Natural Light: F: 3 Desk /Table: F: 1; M:2 Floor/Sofa: F: 1; M: 1 Anywhere: F: 4 Easy Distract: F: 1;M:1 No Distract: F: 2; M: 1 Low Back: F: 3; M: 1	Verbal: F: 4; M: 1 Logical: F: 4; M: 1 Spatial: F: 4; M: 2 Musical: F: 5; M: 1 Bodily: F: 5; M: 2 Interpersonal: F: 4; M: 1 Intrapersonal: F: 3; M: 1	Global: F:4; M:1 Analytical: F:2; M:2	Math: F:3; M:1 History: F:1; M:1 Astronomy: F:1 Science: F:1 Gym: F:1 Lunch: M:2 English & Spanish: F:1
Data by Age (12 & 13 only)								
5 students		Auditory: 0 Visual: 1 Kinesthetic: 4	Otter: 2 Otter/GR: 2 Lion/Otter: 1	Extrovert: 4 Introvert: 1 Sensing: 2 Intuitive: 3 Thinking: 2 Feeling: 2 Judging: 0 Perceiving: 3 (remainder in each set – unsure)	6-10AM: 1 10AM-2PM: 1 2-6PM: 2 6-10PM: 1 Small Snack: 1 No Food or Drink: 2 Food & Drink: 2 Bright Light: 1 Dim Light: 2 Natural Light: 2 Desk/Table: 2 Floor/sofa: 1 Anywhere: 2 Easily Distracted: 2 Not Distracted: 2 Low Background: 1	Verbal: 3 Logical: 2 Spatial: 4 Musical: 2 Bodily: 3 Interpersonal: 3 Intrapersonal: 1	Global: 4 Analytical: 1	Math: 2 History: 1 Astronomy: 0 Science: 1 Gym: 1 Lunch: 2 English & Spanish: 1

Appendix D - Steps in Curriculum Decisions Using Personality and Learning Style

I. Set Family Goals

Why? Basic Philosophy/Beliefs	What preparing children for? (To make lots of money; to serve God &/or others; to have fun in life; to pursue personal ambitions) Who owns our children? (The State, parents, God, no one) What is man's nature? (sinful, corrupted nature; basically good needing shaping)
How? Philosophy of Education	Traditional; lecture with memorization and drill; Classical; Charlotte Mason; discovery/experiential; child-centered unschooling; child-centered parent-led; individualized
What? Methods & Materials to use	What methods & materials needed to fulfill goals and meet expectations set by basic philosophy and educational philosophy: Consider age of children and how many schooling at home; informal learning; complete curriculum package; eclectic combination of curriculum; computer or DVD schooling; self-directed

Source: Cathy Duffy, *Christian Home Educators' Curriculum Manual Elementary Grades*

II. Determine Learning Style of Parent/Teacher

Type A: Actual Spontaneous	Fun loving; impulsive; creative & efficient solutions to tasks; activity over reading books; prefers teaching fine arts, physical education, and activity-oriented classes
Type B: Actual Routine	Planner; follow schedules; memorization and drill work; easily upset when children don't cooperate; focus on meeting requirements; prefers umbrella program for home educators; prefers pre-planned curricula; prefers teaching "cut and dry" subjects
Type C: Conceptual Specific	Likes to be in control; logical thinking and acting; understanding of reasoning and logic of ideas; good organizer; work alone/independent; impatient with those disorganized and slow to grasp; uncomfortable in social settings; less sensitive to others' feelings & emotions; makes long-term plans; usually organized; prefers teaching math, science & other logic-related subjects
Type D: Conceptual Global	Enjoys social interaction; likes to belong to groups; concerned with what others think; insecure about abilities in home education teaching; idealistic with expectations & goals; may or may not be organized; focus more on general concepts than details; prefers teaching language arts, social studies, & possibly fine arts

Source: Cathy Duffy, *Christian Home Educators' Curriculum Manual Elementary Grades*

III. Determine Learning Style of Student

Learning Styles (Gregorc)	Concrete Sequential/Facts: practical; organized; efficient & economical ideas; concrete products from abstract ideas; works well within time limits	Abstract Sequential/Underlying Principles: data before decisions; analyze ideas; research; logical sequence; facts to prove or disprove theories; analyze means to achieve goal	Abstract Random/Personal Relevance: sincere listener; understand feelings & emotions; focus on themes & ideas; harmony for group situations; good rapport with most people; recognize emotional needs of others	Concrete Random/Compelling Reasons: inspire others to take action; viability of many options & solutions; unusual & creative ideas; visualize future; finds different ways to accomplish things; accepting of people; thinks fast on feet; risk taker
Environment/ Concentration (Dunn & Dunn)	Noise level: <input type="checkbox"/> None <input type="checkbox"/> Quiet <input type="checkbox"/> Anything goes	Lighting: <input type="checkbox"/> Bright <input type="checkbox"/> Minimal <input type="checkbox"/> Natural	Heat: <input type="checkbox"/> Warm <input type="checkbox"/> Cool	Food: <input type="checkbox"/> None <input type="checkbox"/> Light snacks <input type="checkbox"/> Food available
Modality/ Remember (Barbe-Swassing)	Visual: Learn by seeing & watching; using strong visual associations; mental pictures	Auditory: Learn by listening to verbal instructions; remember by forming sounds of words; rhythmic patterns	Kinesthetic: Learn by becoming physically involved & doing something with what's being learned; movement	
Dominant Learning Style/ Understand (Witkin)	Analytic (field independent): break down information into component parts; focus on details		Global (field dependent): Overall picture/gist; details not so important	
Multiple Intelligences (Gardner)	Linguistic: reading, writing, word games	Logical-Mathematics: experimenting, questioning, puzzles	Spatial: designing, drawing, visualizing, doodling	Musical: singing, whistling, humming, tap feet & hands, listening
	Bodily-Kinesthetic: dancing, running, jumping, building, touching	Interpersonal: reading, organizing, relating, manipulating meditating	Intrapersonal: setting goals, meditating, dreaming, being quiet	

Main Source: Cynthia Ulrich Tobias, *the way they learn: How to discover and teach to your child's strengths*, p.22, 90, 105

IV. Evaluate Personality Type of Parent/Teacher and Student

Personality Assessment	Agree	Unsure	Disagree
Extraversion (E): I describe myself as an extrovert (I prefer to be around people; I don't mind large crowds; I am outer-directed)			
Introversion (I): I describe myself as an introvert (I prefer to be alone; I am quiet and inner-directed)			
Sensing (S): I prefer to process information through the use of my five senses; I am detail oriented; I like facts and figures.			
Intuition (N): I prefer to process information through my intuition; I look for the big picture; I am an "ideas" person.			
Thinking (T): I prefer to make decisions based on logic and rational thinking; justice and fairness are important to me.			
Feeling (F): I prefer to make decisions based on my feelings and how decisions will affect people.			
Judging (J): I prefer to plan activities ahead of time; I am decisive and I like to finish projects that I start.			
Perceiving (P): I prefer to be spontaneous; I am flexible and don't always finish tasks but I like to start many projects.			

Source: Karen Wolf, *CliffsNotes Road Map to College: Navigating Your Way to College Admission Success*

V. Discuss After High-School Options (especially for pre-high school students)

Two- or 4-Year College (even if slim possibility at this time), University, Community College, Vocational/Technical School, Apprenticeship, Military, Employment.

VI. Determine State Standards (access state's Department of Education)

OHIO: General Degree (example)

English	Math	Science	Social Studies	Economics & Financial literacy	Electives	Health & PE
4 units	4 units: must include 1 unit of algebra II or equivalent of algebra II	3 units: physical science, life science, chemistry or physics or other physical science, etc.	3 units: must include ½ unit American history, ½ unit American government	Receive instruction during grades 9-12; 2 semesters of fine arts in grades 7-12; career-technical pathway exempted from fine arts requirement	5 units (1 or any combination of): Foreign language (4 units, at least 2 in each language studied); fine arts (1 unit); business, career-technical education, family & consumer sciences, technology, agricultural education or English language arts, mathematics, science or social studies not otherwise required	Health: ½ unit PE: ½ unit OR 2 full seasons of interscholastic athletics, band OR cheerleading; or at least 60 contact hours in another course

Source: www.ode.state.oh.us/gd/

VII. Compare and Choose Curriculum

Curriculum> (Criteria)	Reading & Literature: Bob Jones UP	Math: Math-U-See	History: Tapestry of Grace	Science	Grammar	K12
Meets family goals						
Type of education	Traditional	Traditional w/Videos	Classical; chronological			Online; Public- State run
Methods used	Reading, analysis, discussion; writing	Manipulative- based; multi-sensory	Whole books; activities; discussion			Textbooks, videos, CDs, manipulative
Advanced thinking skills taught	Yes		Yes			
Develop- mentally appropriate	Yes	Yes, for elementary especially	Yes			Yes
Worldview	Christian	Nonsectarian	Christian			Nonsectarian
Learning styles: CS AS AR CR	CS, AS	CR, CS, AS, AR	CR, AS, AR			CS, AS
Modality: Visual Auditory Kinesthetic	Visual, Auditory	Visual, Auditory, Kinesthetic	Visual, Auditory, Kinesthetic			Visual, Auditory, Kinesthetic
Learning Style: Analytical Global	Analytical	Analytical with Global aspects	Global with Analytical aspects			Analytical with Global aspects

Compare programs of interest.

Sources for comparisons: Duffy's *100 Top Picks for Homeschool Curriculum*; various publishers' web sites and/or materials

Appendix E: Curriculum and Instructional Methods Decision Resources

Anderson, E., (Spring 2005). Strengths-based educating: A concrete way to bring out the best in students – and yourself. *educational HORIZONS*, 83, 180-189.

Clarkson, C. & Clarkson, S, (1996). *Educating the WholeHearted Child: A handbook for Christian Home Education*

Clarkson, C. & Clarkson, S. <http://www.wholeheart.org/>

Cohen, C., (2000). *Homeschooling The Teen Years: Your Complete Guide to Successfully Homeschooling the 13- to 18-Year-Old*, Three Rivers Press, New York.

Duffy, C., (2005). *100 Top Picks for Homeschool Curriculum: Choosing the Right Curriculum and Approach for Your Child's Learning Style*, Broadman & Holman Publishers, Nashville, TN.

Duffy, C. <http://www.cathyduffyreviews.com/>

Gold, L. & Zielinski, J. M., (2002). *Homeschooling Step-By-Step: 100+ Simple Solutions to Homeschooling's Toughest Problems*, Prima Publishing,, Roseville, CA.

Johnson, D., (2007). *High School @ Home: You CAN Do It!*, B&H Publishing Group, Nashville, TN.

Lopez, S. J., & Louis, M. C., (2009). The principles of strengths-based education. *Journal of College & Character*, 10, 1-8.

Pride, M., (2004). *Mary Pride's Complete Guide to Getting Started in Homeschooling*, Harvest House Publishers, Eugene, OR.

Willis, J., (2008). *How Your Child Learns Best: Brain-Friendly Strategies You Can Use to Ignite Your Child's Learning and Increase School Success*, Sourcebooks, Inc., Naperville, IL.

Willis, M. & Hodson, W. K., (1999). *Discover Your Child's Learning Style: Children Learn in Unique Ways – Here's the Key to Every Child's Learning Success*, Prima Publishing, Roseville, CA.

Appendix F: Learning Style Resources

Anderson, E., (Spring 2005). Strengths-based educating: A concrete way to bring out the best in students – and yourself. *educational HORIZONS*, 83, 180-189.

Clarkson, C. & Clarkson, S. (1996), *Educating the WholeHearted Child: A Handbook for Christian Home Education*, Whole Heart Ministries, Walnut Springs, TX.

Clarkson, C. & Clarkson, S. (2011), *Educating the WholeHearted Child*, Third Edition, Whole Heart Ministries, Walnut Springs, TX.

Clarkson, C. & Clarkson, S. <http://www.wholeheart.org/>

Duffy, C. (1992). *Christian Home Educators' Curriculum Manual: Elementary Grades*, Home Run Enterprises, Garden Grove, CA.

Duffy, C. (2005). *100 Top Picks for Homeschool Curriculum: Choosing the Right Curriculum and Approach for Your Child's Learning Style*, Broadman & Holman Publishers, Nashville, TN.

Duffy, C. <http://www.cathyduffyreviews.com/>

Lopez, S. J., & Louis, M. C., (2009). The principles of strengths-based education. *Journal of College & Character*, 10, 1-8.

Prashnig Style Solutions, <http://www.creativelearningcentre.com/Products/Learning-Style-Analysis/>

Tobias, C. U. (1994), *the way they learn: How to discover and teach to your child's strengths*, Tyndale House Publishers, Wheaton, IL.

Tobias, C. U. <http://applest.com/>

Various web sites: google "Learning Style Tests" for on-line samples – such as www.educationplanner.org/students/self-assessments/learning-styles.shtml